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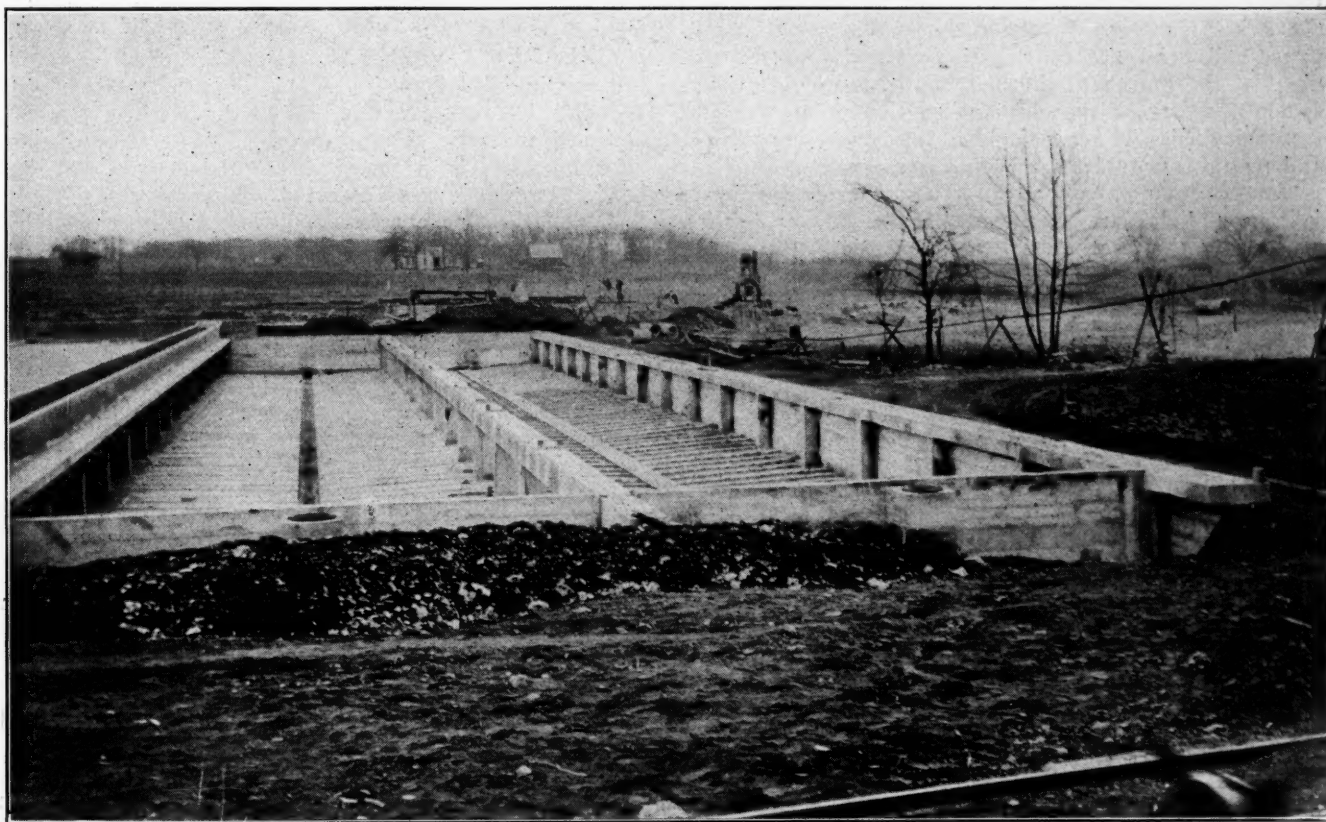


FIG. 4. COMPLETED CONCRETE WORK OF THE SIXTH FILTER UNIT.

SPRINGFIELD SEWAGE DISPOSAL PLANT*

Settling Tanks and Intermittent Filters—Mechanical Distributor, Probably Only One in This Country—Novel Form of Settling Tanks—Vertical Circulation in Tanks—Final Settling Basin—Sludge Bed.

By ALEXANDER POTTER.†

The city of Springfield, Mo., is located two hundred and forty miles southwest of St. Louis, among the foothills of the Ozark mountains, 1,400 feet above sea level. During the last decade the growth of the city has been very rapid. The population in 1900 was 23,000 and in 1910 it was 34,000. The present estimate is placed at 46,000. The area of the city is fourteen square miles.

The last two administrations have been progressive and public-spirited to a marked degree. Large sums have been spent on much-needed public improvements; so that where a decade or so ago Springfield was only a sleepy, overgrown town, it is now a hustling and up-to-date city.

The built-up part of the town is sewered, and recently sewer extensions have been built into the fast growing outlying districts of the city. Up to the present time over 105 miles of public sewers have been completed.

*Paper read before American Society of Municipal Improvements.

†Consulting Engineer, 50 Church Street, New York.

A ridge running east and west divides the city into two distinct drainage areas, known as the northern and the southern areas. The northern area, which is the smaller of the two, takes in about two square miles and is drained by a number of small streams which discharge into the Sac river. The southern area takes in all of the thickly populated districts, including the new addition south of the city, and drains southwesterly into Jordan and Wilson creeks, tributaries of the James river.

During the greater portion of the year the natural flow of all of the streams is so small that they are unable to assimilate the large quantities of sewage that are constantly discharged into them. In the spring of 1911 the nuisance from raw sewage discharged into these streams became so serious that the city authorities realized that unless immediate steps were taken to abate this nuisance the city would make itself liable for damages.

Before calling in an engineer to design the much-needed improvements to the sewerage system, the city

appropriated \$100,000 to construct sewage treatment plants at two sewer outlets. After appropriating this money the city proceeded to call for bids upon contractors' plans and specifications. This plan was abandoned, however, before the contract was let, and the city retained the writer to design and supervise the necessary sewage disposal plants.

The ridge extending east and west through the city made it necessary to construct two sewage disposal plants. The most logical location for the sewage disposal plant for the northern district was near Doling Park, directly north of the city limits at the mouth of the existing sewer. In the southern district the ordinance called for the construction of a sewage disposal plant at the mouth of the main outlet sewer. To construct a sewage disposal plant at this point was not recommended. The site is low, subject to inundation, and pumping would have been necessary.

On account of the small quantity of water flowing in Wilson and Jordan creeks during the greater portion of the year, the treatment of the sewage in settling tanks alone would not give a sufficiently pure effluent to abate the nuisance. Some additional treatment, such as contact beds or intermittent filters, was therefore absolutely necessary. To obtain a head at the southern outlet sufficient to operate a filter would back up the

sewage in the main outfall sewer for a distance of at least 3,500 feet. This sewer, which is an egg-shaped brick sewer, 28 inches by 42 inches, was not strong enough to withstand any internal hydrostatic pressure without rebuilding. Above its mouth the outlet sewer for a distance of 3,200 feet has a fall of only 4.6 feet; at this point there is a 2-foot drop, and the grade increases to 4.1 feet per thousand. It was recommended that the treatment plant be built at the point where this change in grade occurs. To obtain at this point the necessary head to operate the plant only 2,000 feet of sewer would be surcharged. For a distance of 1,436 feet, that portion of the length where the hydraulic gradient falls above the natural surface of the ground, the existing egg-shaped brick sewer was replaced with 36-inch reinforced concrete pipe of the Meriwether type, designed to resist this pressure. This reinforced concrete pipe has been found very satisfactory under the head to which it was subjected, viz., from 3 feet to 10 feet, and the line appears to be practically watertight. The existing sewer below the sewage disposal plant was not rebuilt and is used to convey the effluent from the plant to the outlet.

On account of the limited area available it was deemed advisable to use intermittent filters instead of contact beds. The ordinary type of sprinkling filter could not

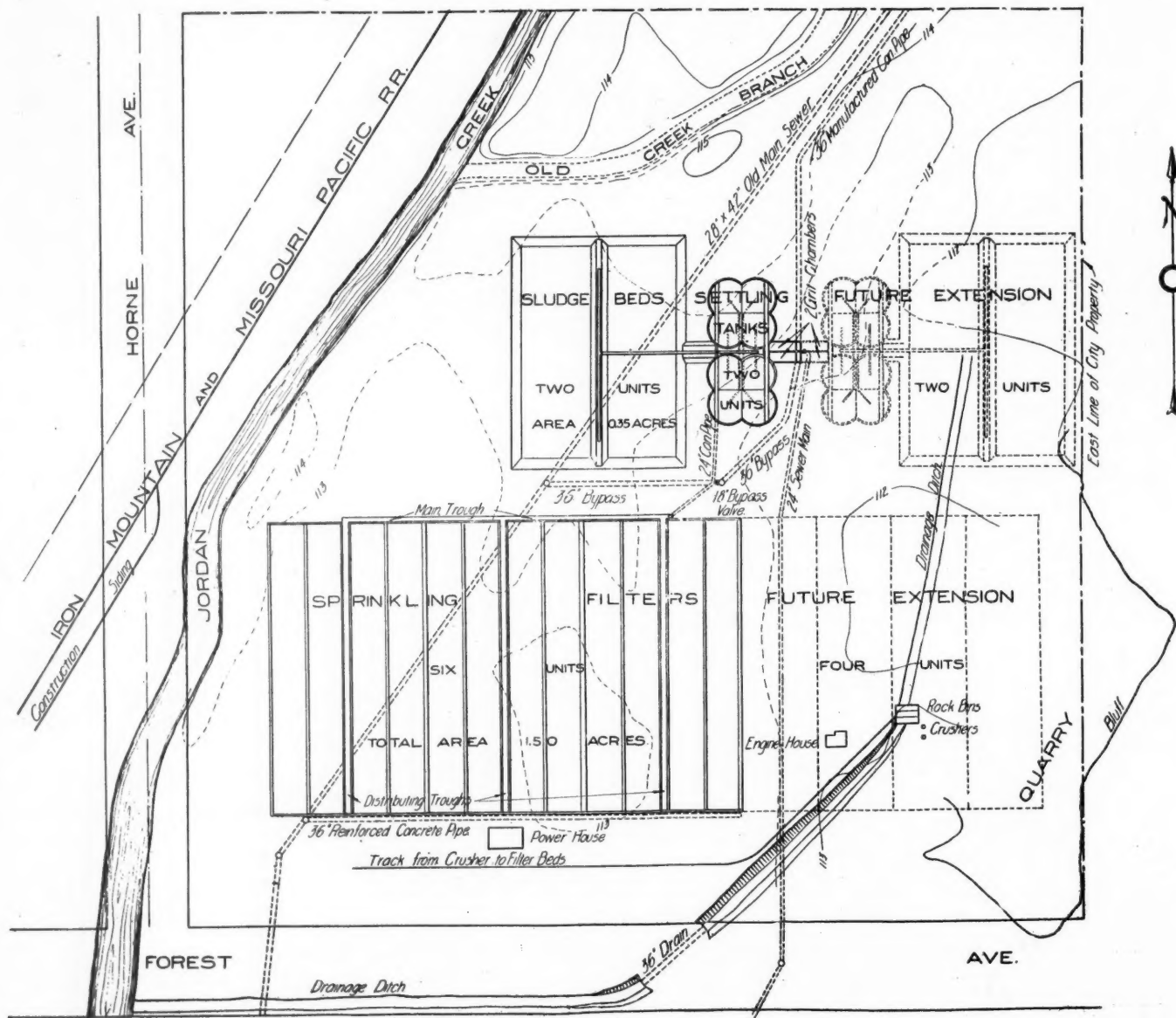


PLATE 1. LOCATION PLAN OF SOUTHERN SEWAGE DISPOSAL PLANT.

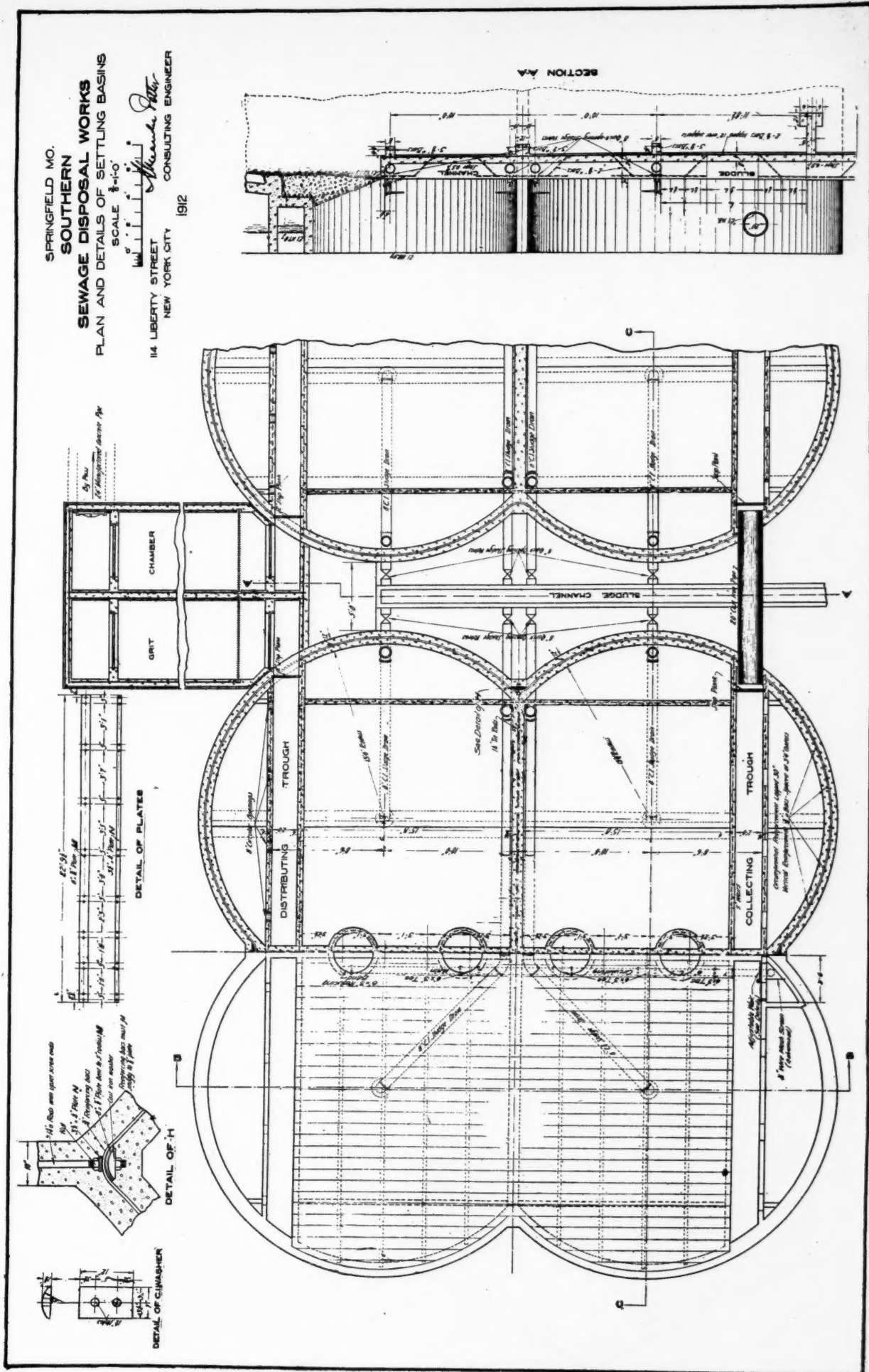


PLATE 2. PLAN AND DETAILS OF SETTLING BASINS.

be used, as such a filter requires a head of at least 5 feet to operate the nozzles. Such a head could be obtained only by pumping. Mechanical distribution was therefore recommended. The distributor selected is operated with a head of only 12 inches.

Plate 1 shows the general arrangement of the plant as built. It consists of a grit chamber built in duplicate, two settling tanks of the two-story type, a sprinkling filter divided into six units, each 53 feet 9 inches wide

and 200 feet long, a sludge bed 0.35 acre in extent, and a final settling basin of 150,000 gallons capacity, located at the outlet, 3,600 feet from the remainder of the sewage disposal plant.

GRIT CHAMBER.

The grit chamber is constructed in duplicate. The flow in the grit chamber is retarded sufficiently so as to retain only the suspended mineral solids which would interfere with the operation of the settling tanks. Pro-

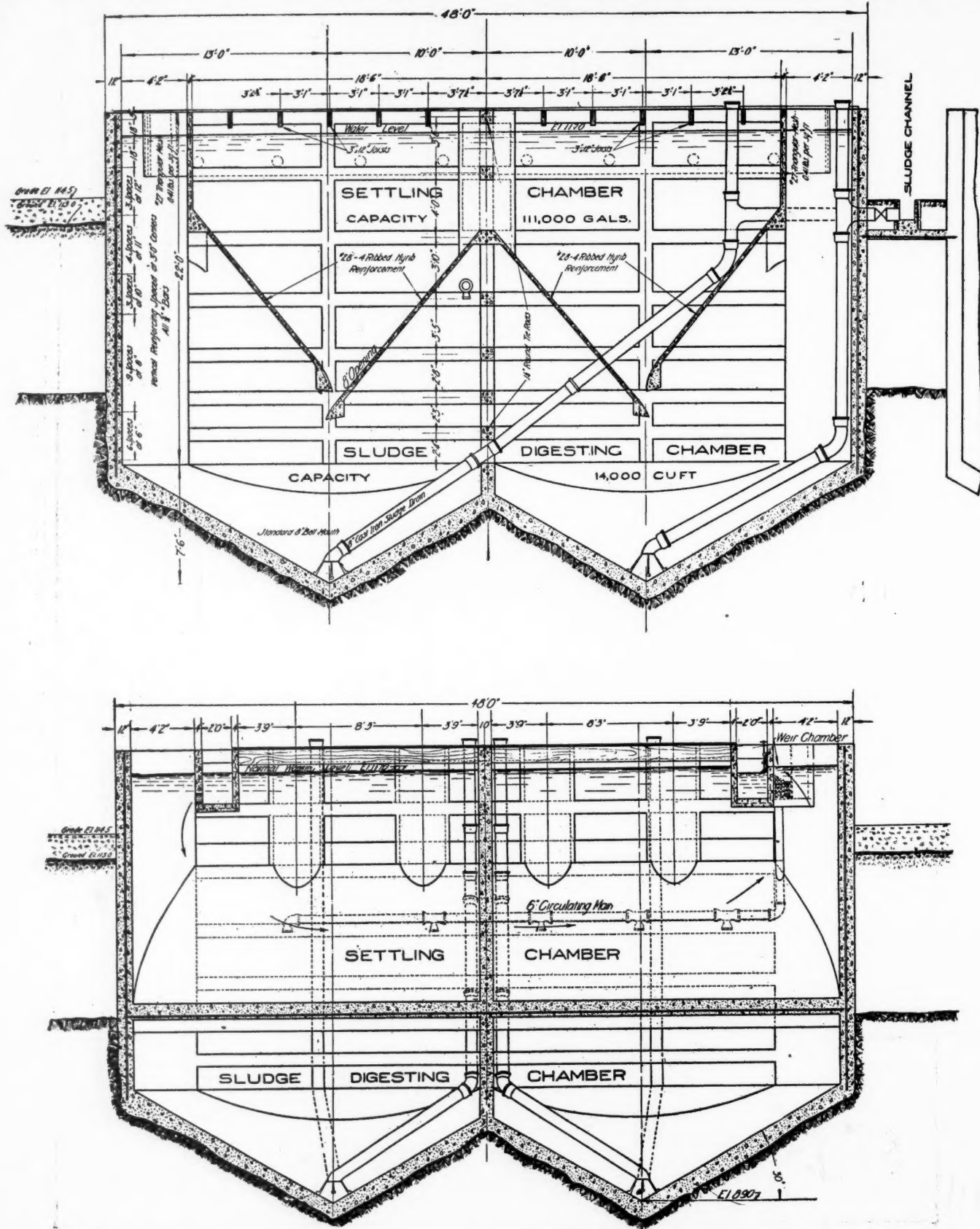


PLATE 3. DETAIL SECTIONS OF MAIN SETTLING TANKS.

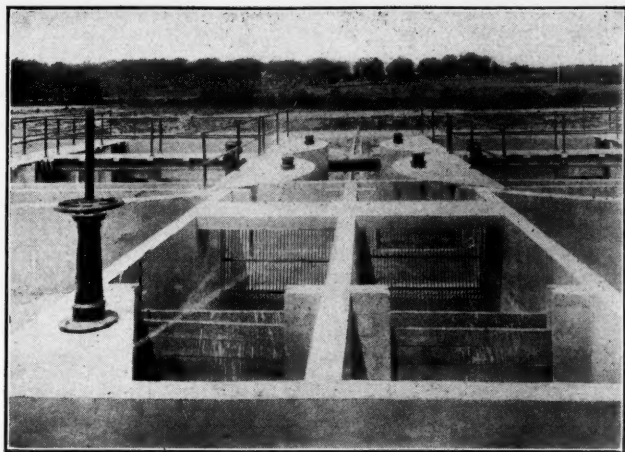


FIG. 1. COMPLETED GRIT CHAMBER AND SETTLING TANKS.

vision is made so that during times of flood the back pressure on the outfall sewer can be readily and quickly relieved, thus scouring out whatever deposits may have formed in the 36-inch reinforced concrete pipe.

SETTLING TANKS.

Type Selected.—Concrete, either plain or reinforced, is practically the only structural material available for constructing sewage settling tanks of the dimensions required for a large municipality. So far as the writer knows, the circular tank has been used in this country only in constructing the smaller units; for the larger sizes it has been customary to use rectangular construction. The rectangular form under all conditions, and especially when a large portion of the tank is above the surface of the ground, is a more expensive form to build. The Springfield sewage tanks are neither square nor truly circular. Each unit is four-leaf-clover shaped, consisting as it does of four semi-cylindrical segments 26 feet in diameter. This type of construction is peculiarly well fitted not only to resist the water pressure from within, but also the earth pressure from without when the tank is below the ground and empty. The construction features of the tank are clearly shown in Plates 2 and 3. The shell of the semi-circular segments is 12 inches thick, reinforced vertically with $\frac{3}{4}$ -inch bars spaced 3 feet centers and circumferentially with $\frac{3}{4}$ -inch square bars spaced so that the unit stress does not exceed 14,000 pounds per square inch. The unbalanced tension at the point where the semi-circular segments intersect is taken up by $1\frac{1}{4}$ -inch circular rods embedded in concrete struts—see Detail H of Plate 2.

The steel reinforcement in these ties is designed to resist the tensile forces at the same unit stress as the

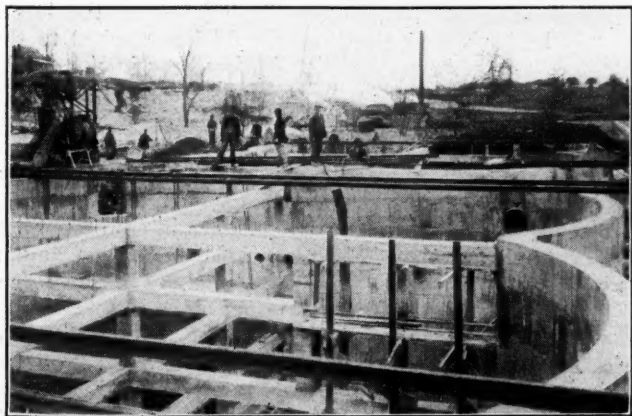


FIG. 2. INTERIOR OF SETTLING TANKS DURING CONSTRUCTION.

circumferential reinforcement in the shell. If this is not done, and different stresses are used for the tie rods than are used for the shell, the shell, instead of being subjected to simple tension, will be subjected to bending. The tie rods are fastened to a steel plate 8 inches wide, $\frac{7}{8}$ -inch thick, bent to a 5-inch radius. By means of double nuts the reinforcement is kept in accurate alignment, which insures equal distribution of the tension among the larger number of the tie rods.

Precaution Necessary to Prevent Secondary Stress.—The cylindrical segment must be free to expand in all directions. If the expansion is in any way prevented by interior construction, such as the troughs, false bottoms, beams, etc., the shell, instead of being under tension only as contemplated by the designer, will be subjected to heavy bending, often sufficient to cause the fracture of the structure. To permit of the free expansion of the shell when under internal pressure, all interior construction, except at the intersection of the ties and struts with the shell, is separated from the shell by expansion joints.

Operation of Tank.—After passing through the grit chamber, the sewage enters the distributing trough, which is 2 feet wide, and holds, under normal conditions, about 2 feet of liquid. (See Plate 3.) Eight 8-inch circular openings, placed in the sides of the trough near the bottom and on the side next the outer wall, admit the sewage to the settling compartment. At the end of the trough is an additional opening, placed so

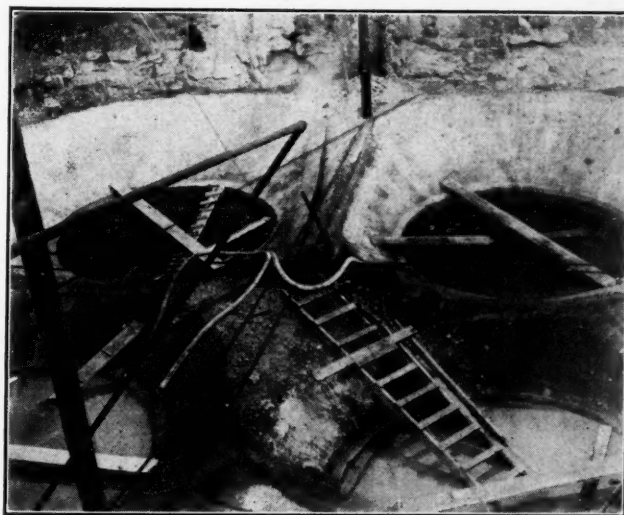


FIG. 3. CONICAL BOTTOMS OF DIGESTING CHAMBERS OF MAIN SETTLING TANKS.

as to be but half submerged, so that whatever scum may tend to collect in the distributing troughs is carried over into the settling compartments. Each settling compartment has a capacity of 111,000 gallons, which gives an average period of retention of 1.4 hours when the plant is operated at 4,000,000 gallons, its capacity. The flow in the settling compartment is parallel to the direction of the slot. To prevent eddies and other disturbances from being set up in the settling compartment which interfere with the settling efficiency, the liquid is admitted to the settling compartment in a direction opposite to that which it must take in passing through the compartment. The clarified sewage leaves the settling compartment over eight 15-inch weirs discharging into the collecting trough.

Concrete Struts Not Objectionable.—The presence of the concrete struts in the settling compartment does not in any way interfere with the efficiency of the tank. Where necessary, they can be capped with wedge-shaped

pieces of concrete having slopes of at least 45 degrees.

In that circular segmental area between the distributing trough and the shell of the tank, all of the floating matter is collected and forms a very heavy scum, requiring slight attention from the operator.

Vertical Circulation.—To increase the settling efficiency of tanks of the type described, the writer uses vertical circulation. The amount of sewage thus circulated is very small and does not exceed two per cent of the total amount of the sewage treated. To accomplish the vertical circulation mentioned, a 6-inch cast-iron main with four 4-inch circular openings is laid in the digesting chamber of each tank, about 6 feet above the slot. (See Plates 2 and 3.) This circulating main terminates in a small chamber located in the segment between the collecting trough and the shell, which chamber has an adjustable weir to control the flow from the digesting chamber into the collecting trough. In the Springfield plant the liquid thus drawn off is mixed with the effluent from the settling compartment and the resultant mixture is treated on the sprinkling filters. In other plants that the writer has built, the liquid drawn off from the digesting chambers is returned to the distributing troughs. Circulation such as that used in Springfield is especially of value when the sewage to be treated reaches the plant in a more or less septic condition. The Springfield plant has not been in operation long enough to determine the exact value of the circulation system.

Sludge Digesting Chamber.—The suspended organic and mineral matter which settles out of the sewage in the settling compartment slides down the inclined plane through the 8-inch slots located in the bottom of the wedge-shaped settling compartments into the sludge digesting chamber. The sludge digesting chamber has a capacity of 105,000 gallons below the opening. The bottom of this compartment is formed by four cone-shaped depressions in which the decomposed sludge ultimately collects. To draw off the sludge, 8-inch cast-iron sludge pipes extend down into these cone-shaped depressions, the sides of which slope at an angle of 30 degrees. The lower ends of these pipes terminate in bell-mouths supported on spiders. The sludge pipes are carried up inside of the tank to the top, giving ready access for cleaning. The sludge outlets, of which there are four for each unit, discharge under a 5-foot head into a reinforced concrete trough which conveys the sludge to the drying beds. The open channel used for conveying the sludge is preferable to the closed pipes generally used. In an open channel the sludge drawn off is at all times visible to the operator, and therefore the character of the sludge drawn off can be controlled far better than when a closed sludge conveyor is used. There is positively no odor during the operation of the sludge valves, either in the trough or upon the sludge beds.

Economy of Construction.—The Springfield tanks have been found to be very economical in construction. Concrete and steel are used under ideal conditions to resist the pressures to which the tank is subjected. From the contractor's standpoint also the cost of constructing the tank is not excessive. To construct the conical bottoms of the digesting chamber a vertical pipe 2 inches in diameter was placed in the center of each cone and firmly braced. From this pipe was suspended a wooden triangle adjusted at such an elevation that the hypotenuse described the interior surface of the cone when rotated about the pipe. The concrete was mixed rather dry and placed in 4-inch layers and tamped as much as it would stand, the last layer being carefully brought to a true line by the swinging template. A 1/2-inch

coating of 1 to 2 mortar was applied to the interior of the cones to give them a smooth surface.

To construct the outside shell of the settling tank the constructor used wooden forms made in 5-foot sections, 2 feet high. A complete set of inside and outside forms was built, extending entirely around one tank, and a complete ring 2 feet high was poured at one time. The following day the sectional forms were raised 2 feet and wired in place at the new point. No trouble was found in shifting the forms and holding the walls plumb and true to line. The false bottoms of the settling compartments were built of No. 28 4-rib hyrib, plastered with mortar to a thickness of 2 1/2 inches. The circular ventilators also were built of hyrib and plastered with cement mortar, no other forms than templates being used.

(To be continued)

FIRE ALARM SYSTEMS*

Plain Interfering, Non-Interfering and Non-Interfering Succession Boxes—Manually Operated, Semi-Automatic and Automatic Systems.

By GEORGE L. FICKETT.†

The fire alarm signal system is indispensable to a properly equipped fire department. Once in a while we read of a fire and how the department was delayed because a fire alarm box failed to operate. That is a very serious thing, but the fact should not be forgotten that perhaps thousands of alarms had been received and transmitted before that time, with no more serious trouble than that a tapper or a tower bell failed to work properly.

Not only should reliable fire alarm apparatus be bought, but the greatest care should be employed to run the circuit wires properly, for it is the wires that generally give the most trouble. Cities should put their wires underground whenever possible, not only to set a good example to others, but because wires properly installed underground give the best results.

A system may consist of only a few boxes, a battery, the circuit wires and a bell striker or a whistling machine, or it may be very extensive and consist, in addition to boxes and circuit wires, of an elaborate central office equipment and a variety of appliances in the fire houses; but in any case it requires constant and intelligent care, and a system that does not get this care is liable to fail at the wrong time.

Boxes should be conspicuously located and be readily accessible at all times. They should be kept brightly painted to make them conspicuous, and, if possible, their locations should be designated by red lights at night. They should be properly inspected at regular intervals, say once a month. The doors to the boxes should be keyless or the keys should be attached to the boxes. It is bad practice distributing keys in the neighborhood houses as there is generally a delay in getting the key. False alarms are expensive and are more or less demoralizing, but it is better to have an occasional false alarm than to have a serious delay in case of a real fire.

According to the underwriters, boxes in congested districts should be placed not over 1,000 feet apart and in thickly settled suburban districts not over 1,600 feet apart, and that is a good rule to follow.

If possible, boxes should be interlaced on different circuits so that no two adjacent boxes will be on the same circuit. This is an advantage, because if one cir-

*Abstract of paper before Massachusetts State Firemen's Association, Sept. 25.

†Superintendent of Fire Alarm System, Boston, Mass.

cuit is out of commission the boxes on that circuit are useless, and in case of fire if a person runs to one box and finds that it does not work he should be able to send an alarm from the next box. But where an interfering type of box is used it is quite essential that two adjacent boxes that are liable to be pulled for the same fire should not be on the same circuit.

There are various types of boxes in use, the plain sector interfering box, the non-interfering type, and the non-interfering succession type.

The plain sector box is the oldest type, and it still has some advantages over the later types. Its mechanism is extremely simple, and because of its simplicity is less liable to get out of order. The possibility of two boxes on the same circuit being pulled together, however, condemns it for general use. Where it is possible to properly interlace in manual systems excellent results are obtained by using this type.

The non-interfering box is the one most generally used, especially in automatic systems. When two of these boxes on the same or on different circuits are pulled together one box "gets the line," as the expression goes, and the other by means of an automatic device cannot be operated, therefore there is no possibility of the alarms mixing.

Fire alarm wires should be insulated, and, if necessary to run on the same poles with electric light wires, should be run under the light wires. The fire alarm man should not be obliged to climb up through lighting wires to reach his wires, and less danger of contacts is had if the lighting wires are overhead.

There are three kinds of fire alarm systems in general use. The manually-operated system for large cities, semi-automatic systems for medium-sized cities, and automatic systems for small cities and towns.

In manual systems, as well as in semi-automatic systems, there are two kinds of circuits—receiving circuits and alarm circuits. On the receiving circuits are connected the fire alarm boxes and the relays in the office. There are two kinds of alarm circuits, the fast time and the slow time. In the fast time circuits are the tappers in the department houses and sometimes registers and indicators which are operated by a transmitter, while on the slow time circuits are the gongs in the houses and large bells or whistles. It is general practice to have both kinds of alarm circuits in the same house.

In some systems they sometimes use combination circuits, that is, some of the instruments are polarized or, in other words, operate only by reversing the direction of the current, while other instruments operate by opening and closing of the circuits. In these combination circuits it is possible to use apparatus for striking the alarms and at other times apparatus for telegraphing each being used without conflicting with the other.

In semi-automatic systems are all the devices that are used in manual systems, and in addition are machines which by an arrangement of switches automatically strike the alarms without the intervention of an operator.

In automatic systems boxes and bells are generally on the same circuits and no operator is required. If the automatic system consists of more than one circuit a repeater is used. The repeater is a machine in which all the circuits center, and when it is operated by the opening and closing of a circuit it causes the blows to be repeated on all other circuits, and also, by means of locking devices, prevents a mixing of alarms by automatically opening all the circuits except the working circuit.

Ordinarily, there is but one central fire alarm office in a city, except in the largest cities, where there are perhaps two or three offices; but there is a system,

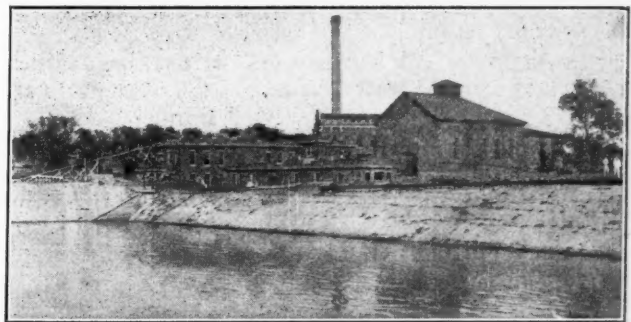
comparatively new, where the city is divided into zones with a fire alarm office in each zone, and these are connected together by means of trunk cables, so-called. There is one distinct advantage in this type of system, and that is if a conflagration occurs the entire system is not liable to be put out of commission. But for a large city where the entire situation is controlled from one office it seems to me that the one office plan has many advantages over the zone system.

The zone system has been started in Los Angeles, California, and is well recommended by the underwriters.

In London, England, they use the zone system, but they do not recommend their particular kind to anyone else.

NEW FILTRATION PLANT AT DALLAS.

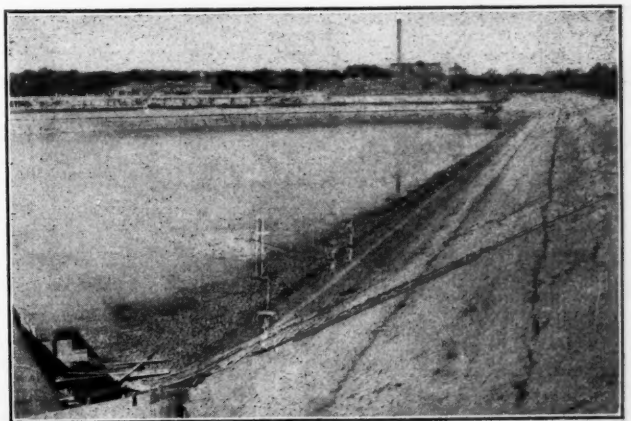
The city of Dallas, Texas, has just completed a filtration plant upon which it has been working for more than a year and the cost of which has been approximately \$230,000. The plant consists of two basins, one used as a sedimentation basin and the other as a clear water basin; a secondary reaction or coagulation basin which is part of the pumping station, and twelve rapid filters. The pumping station is equipped with one 10,000,000-gallon pump and one 6,000,000-gallon pump. The present consumption of the city is 14,000,000 gallons daily. The new filtration plant will have a capacity of 15,000,000



FILTER BUILDING AT LEFT; ABANDONED PUMPING STATION AT RIGHT (TO BE RAZED); NEW PUMPING STATION IN THE REAR.

gallons per day when working at the rate of 125,000 gallons per acre, but it will be possible to increase the rate so as to filter 18,000,000 gallons in 24 hours.

The water which is to be treated will be brought about three miles to the sedimentation basin. Aluminum sulphate solution is added to the water as it comes into the west or sedimentation basin at the rate of one part to 60,000. This basin has a capacity of 60,000,000 gallons, or something over four days supply. During its stay in this basin it is expected that practically all of the aluminum hydrate will have settled out of it. Shortly before the



WEST OR SEDIMENTATION BASIN

aluminum sulphate is added the water will be treated with calcium hydrate in order to soften it.

From the sedimentation basin the water is conveyed to the secondary reaction or coagulation basin through a 42-inch pipe. From this secondary basin it is taken on to the filters through another 42-inch pipe.

Each of the twelve filters is 15x28 feet. The filtering material is 5 feet deep and consists of 8 inches of coarse gravel and the remainder of Pennsylvania anthracite coal about the size of rice grains. From the filters the water passes to the storage or clear water reservoir, which, like the sedimentation reservoir, has a capacity of 60,000,000 gallons. Provision is made for sterilizing the water with hypochlorite when deemed necessary.



EMBANKMENT DIVIDING SEDIMENTATION AND CLEAR WATER RESERVOIR; 42-INCH PIPE WHICH CONDUCTS WATER FROM FILTER TO LATTER.

The filters are in a building a short distance southeast of the east or clear water basin, which building also contains the chemical laboratory and storage room. The building is of brick, four stories high including the basement. The chemicals are first dissolved in tanks on the top floor of this building. Below these are the lime slackers and the lime saturators. The lime solution is carried to the west end of the west or sedimentation basin through a 4-inch vitrified pipe.

The chemical laboratory has been very completely equipped at a cost of about \$2,200. Provision is made for manufacturing ice here at the rate of about one-fourth of a ton per day to be used in the incubators and in maintaining the samples of water at a uniform temperature. It is proposed to make three tests of the water for bacteria each day.

KEEPING PUBLIC PROPERTY PUBLIC.

In a leaflet recently issued by the Bureau of Municipal Research of New York and bearing the above title, there is told in some detail how a strip of ocean beach at Coney Island, 663 feet long and 126 feet wide, which had been fenced in by private parties, was recovered by the attorney general to the use of the public. The leaflet concludes with the following admonition of general application:

Officials should insist that

1. Storekeepers, hotel owners and others bring show windows, portes-cocheres and other projections within the building line. During the present administration, borough president McAneny recovered sidewalk space amounting to a strip 10 feet wide and 13 miles long. In all, 77,000 square yards were retaken on crowded thoroughfares such as 14th, 23d, 34th, 52d and 59th streets.

2. City streets be kept reasonably clear of stationary push carts, peddlers' wagons, department store delivery wagons, etc.

3. Billboards and other advertisements be controlled by taxing them according to their area in square feet. Not only would this keep public property public, but it would increase city revenues. No statistics showing the amount of bill board and sign board advertising in New

York is available and consequently it is impossible to state how much such a tax would increase the city's revenues.

In 10 months, however, (Jan.-Nov., 1911), application was made to the building department for permission to build signs having a total area of 268,879 square feet.

At the rate of 30 cents a square foot, that would mean an increase in city revenue from signs added in 10 months alone of about \$90,000.

4. Strict account be taken of all space under sidewalks used for vault purposes and each user be required to pay for a permit a sum proportionate to the amount and value of space used. At present even when a permit is obtained, a fee is paid only once instead of annually. If vault spaces under city sidewalks and streets were made public property and an annual rental based upon the assessed valuation of adjoining property charged, the commission on new sources of city revenue estimated that the city would receive:

\$436,000 for vault privileges on Broadway from Bowling Green to 42d Street.

\$307,000 for vault privileges on 5th avenue from Madison Square to 59th street.

\$37,000 on 14th street, from 4th to 7th avenues.

\$67,500 on 23d street, from 4th to 7th avenues.

\$81,000 on 34th street, from 4th to 7th avenues.

\$60,000 on 42d street, from 4th to 7th avenues.

This would mean an increase in city revenue of \$988,500 annually from the vaults on a few streets in one borough.

UPKEEP OF ROAD EQUIPMENT.

From paper by Daniel J. Hauer before the American Road Congress.

All machinery should be protected when it is not being used, and some when in use. Boilers at work use much more fuel when not protected. Some kind of a house, built in sections, should always be used to protect boilers. Such sheds can have one side left out and a canvas curtain used when necessary. If the sides and tops are built in sections they can be hooked together with hooks and rods and staples so as to be rigid enough to stand up against the wind and weather.

Machinery that cannot be protected while at work can be covered with canvas coverings over night during rainy spells and at such times when they are not in use. Every traction engine and roller should be thus protected. Steam drills and such tools can be covered with a canvas jacket. The machinery part of a concrete mixer can be so protected and also pumps and other equipment. Heavy waterproofed canvas will be found to be excellent for this purpose, and not only keep the machinery clean from dust and mud, but will likewise prolong the life of the equipment. As the canvas becomes worn from use it must be re-treated with waterproofing liquids to preserve it.

When a new machine is purchased there should always be bought at the same time a number of spare parts, which should be kept on hand. A breakdown in a construction job means not only a delay but a waste of money, for even if men can be laid off and not paid, or can be given other work, yet the job, due to the changes made necessary by the breakdown, will not be worked in the most economical manner.

A good blacksmith shop on the job, equipped with forge for heating heavy steel and with stocks and dies for bolts and pipe, and with good drills and vises, will be found to be a great assistance in the upkeep of road equipment. For heavy machines a few roller bearing or small hydraulic jacks will be found useful in making repairs and renewals.

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CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper either in the form of special articles or of letters discussing municipal matters, are invited and paid for. Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

OCTOBER 23, 1913.

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Business Sense in Health Matters.

The public follows fads. It apparently is able to give its composite attention to only one or two matters at a time, and when it realizes that there are others of equal importance which it has neglected it becomes absorbed in these in turn, to the exclusion of those so recently deemed all-important. Just now public health and good roads are uppermost, and other things are relatively neglected. And in public health, interest is largely centered in tuberculosis of the lungs and typhoid fever.

In 1910 9.3 per cent of all deaths in the registered area of the United States were from the former disease, and there is abundant justification for the large sums being spent in fighting it. General attention also has been directed to water, milk and flies as agents in transmitting typhoid fever. But how about other preventable diseases, especially those which are more or less local in intensity?

The latest report of the active board of health of a certain southern city shows that its deaths last year from typhoid fever were only half as many as from either malarial fever or pellagra. In this city efforts are being made, with some success, to combat and prevent these

diseases; but in too many other cities where they are equally common no attention is paid to them. Instead, everyone follows the popular lead and confines his public activities to urging council to "swat the fly" and purify the water, and cites the typhoid rate as an index of the healthfulness of his own or unhealthfulness of some rival community.

Undoubtedly a very common cause of this is ignorance of local conditions. That sanest of advice which has come down the ages—"know thyself"—applies to cities as well as to individuals. A board of health which knows its business and is faithful requires and secures correct and full returns from physicians of all cases of sickness and deaths within the city, and knows what relation the rate of each disease bears to that in other cities; and if any is higher than is common it learns why. And it should expend its greatest efforts on those diseases and their causes which, in that particular city, most demand attention and will yield the greatest returns for the expenditure of a given available amount of energy in its various forms of service and of money. In general, the "high points" show the largest returns; and the cost of each per cent of reduction—or what is the same thing, of each life saved—increases rapidly as we approach the irreducible minimum. Business sense would indicate that we concentrate in each city on those diseases where the most lives and suffering can be saved per dollar spent; keeping as careful watch and calculation on all diseases all the time as a merchant would on the market prices of the various goods in which he deals. Drainage and sewerage would save more lives per unit of expenditure than would water purification in some cities which cannot immediately afford both. In such a case the proper course appears self-evident, in spite of the present popularity of the one and disregard paid to the other.

Flat Sewer Grades.

The following remarks concerning sewer designing will probably seem almost absurdly unnecessary to many; but we know from personal experience of two engineers of some reputation and several years' practice who entertained the serious misconception referred to, and fear that the same erroneous opinion may be held by others.

Several tables and formulas have been published giving the velocity of flow in sewers of various sizes at different grades. In "Sewerage" (by the editor of Municipal Journal), for instance, table No. 11 gives a grade of 0.4 per cent as necessary for a velocity of 2 feet per second in an 8-inch vitrified pipe; also that in a 15-inch pipe the same velocity can be obtained with a grade of 0.16 per cent. But at the top of the table, and explained at length in the text, is the statement that this applies to a sewer *flowing full or half full*. The error referred to is the overlooking of this fact, and, assuming that if an 8-inch pipe is large enough but a grade of 0.4 per cent cannot be obtained, while a 0.16 per cent grade is obtainable, a 15-inch pipe can be used and will give a velocity of 2 feet, the only objection being the cost. Such a notion is inexcusably and disastrously wrong.

The 8-inch pipe flowing half full would carry 20.9 cubic feet per minute at a velocity of 2 feet. A 15-inch pipe at the same velocity would carry about 73.5 cubic feet when half full. The 20.9 cubic feet to be provided for would, therefore, fill the 15-inch sewer to only one-fourth its depth; and the velocity would be only 1.3 feet per second instead of 2 feet, on the general principle that velocity in any approximately circular conduit decreases as the depth decreases below a certain point.

In an 8-inch sewer at a grade of 0.16 per cent the same volume of flow would have a velocity of 1.5 feet per second, or 15 per cent better than the larger and more expensive sewer.

If, as would ordinarily be the case, the flow for several years after the construction of the sewer was less than 20.9 cubic feet per minute there would be an even greater disadvantage in using the 15-inch pipe. Assume a flow of 10 cubic feet, and we have a velocity in the 8-inch pipe of about 1.25 feet per second; but in the 15-inch pipe of only about one foot per second.

There appear to be only two ways of avoiding deposits on flat grades: to use a larger pipe and get enough sewage into it to half fill it, either by bringing in more laterals or by tapping a stream near its upper end; or by abundant flushing daily at points not more than 500 feet apart. (It is, of course, taken for granted that the most minute care will be used in laying such lines to have each pipe laid at exact grade and line, the joints tight against the entrance of sand, and every precaution taken to ensure that the pipes do not shift after being laid.)

Loss of Head in Bends.

In a paper bearing this title, read before the New England Waterworks Association by W. E. Fuller, he stated that he does not pretend in this paper to advance any new theory nor does he offer any additional experimental data; but he has tried to put the reliable data on the subject in a form which can be readily used in determining the probable loss of head in bends and curves under the conditions that are ordinarily met with in waterworks practice. He considers the experiments by Williams, Hubbell and Fenkell; by Ernest W. Schoder; by George J. Davis, Jr., and by A. W. Brightmore, and calls attention to the fact that the other experiments did not confirm the conclusions of Williams, Hubbell and Fenkell as to the minimum loss occurring with bends of a radius of $2\frac{1}{2}$ pipe diameters. Some showed this relation as high as the 2.75 power of V , while others showed it as low as the 1.5 power.

Mr. Fuller states that it seems to have been generally assumed that the loss of head in bends on different sizes of pipe should be the same when the radii of the bends expressed in terms of the diameter of the pipe were alike, but sees no valid reasons for making such an assumption. He finds that if this be abandoned a much closer agreement between the data can be obtained. He finds the loss is more nearly the same for different sizes

of pipes with bends of the same actual radius in feet than for bends of the same radius in pipe diameters. He plotted the loss of head for different velocities due to bends of the same radius on logarithmic paper in relation to velocity, and concluded from this that the loss of head is proportional to $V^{2.25}$. On this basis he finds the formula for loss of head in excess of loss in straight pipe as equal to $KV^{2.25}$, in which K is a coefficient different for bends of different radii.

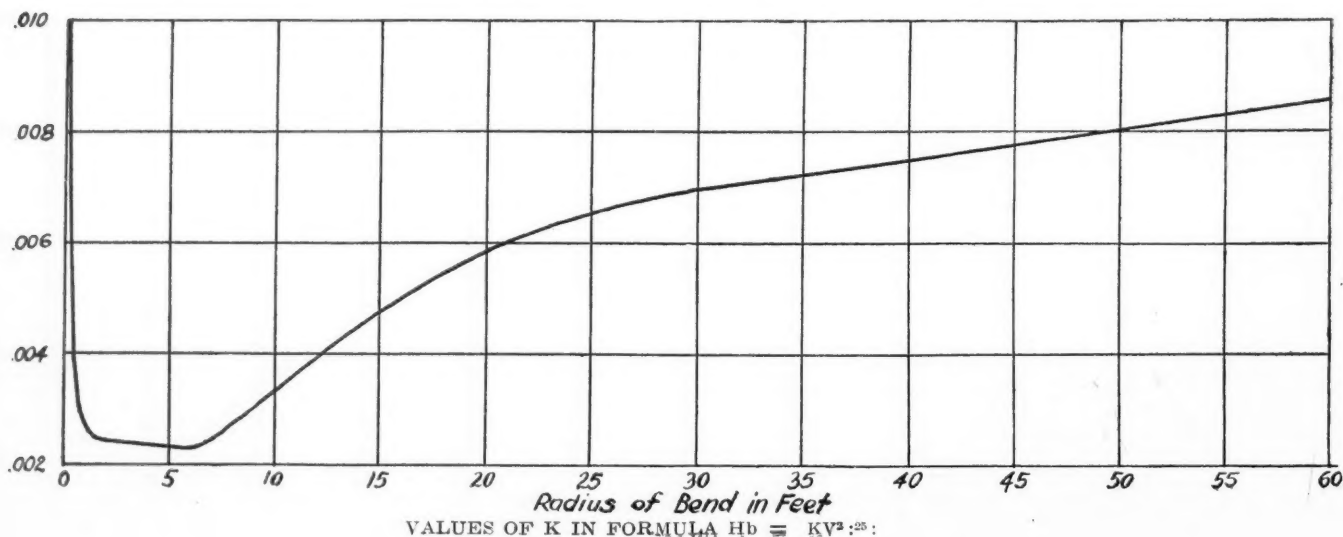
From the data at his command he prepared a diagram which we reproduce herewith giving the values of K for bends of radii up to 60 feet. In order to show the loss of head for bends in ordinary use, the accompanying table has been prepared giving the excess loss for bends constructed according to the New England Waterworks Association standard.

The table gives the loss of head due to 90 degree bends in excess of the loss due to friction in straight pipe of a length equal to the length of the curve. To compare the total loss of head which would actually occur in pipe line containing these curves, it is necessary to take into account the relative length of the different curves. The use of long radius curves makes the total length of pipe less than the use of short curves, with a corresponding smaller loss in pipe friction. He finds it most convenient to compute the loss of head in pipe lines by taking the actual length of the tangents as straight pipe, finding the frictional resistance in it, and then adding the excess resistance due to curves and other specials.

"The importance of these losses," says Mr. Fuller, "may be understood when it is realized that in 1,000 ft. of 72-inch pipe a single 90 degree bend poorly designed may readily reduce the capacity of the line by 5 per cent., and a poorly designed inlet or outlet of the pipe to a structure may reduce the capacity by fully 10 per cent."

LOSS OF HEAD DUE TO 90° BENDS OF THE NEW ENGLAND WATER WORKS ASSOCIATION STANDARD.

Size of pipe inches.	Radius of bend feet.	Excess loss in straight pipe of length equal to tangents.		
		$v = 3'$	$v = 5'$	$v = 10'$
4	1.33	0.0211	0.073	0.366
6	1.33	0.0247	0.082	0.399
8	1.33	0.0263	0.086	0.414
10	1.33	0.0271	0.089	0.423
12	1.33	0.0279	0.090	0.429
16	2.0	0.0262	0.085	0.409
20	2.0	0.0269	0.086	0.415
24	2.5	0.0265	0.085	0.410
30	3.0	0.0262	0.083	0.406
36	4.0	0.0258	0.083	0.400



The WEEK'S NEWS

New York State Highway News—Typhoid Ravages Continue—Water Famine in Kentucky—Commission Government Progress—Running New York City—European Rapid Transit—New Municipal Enterprises.

ROADS AND PAVEMENTS

Traffic Regulations for New York State Highways.

Albany, N. Y.—State Commissioner of Highways Carlisle has issued regulations for protection of state and county highways, especially for the use of traction engines, automobile trucks and busses and road engines. These take effect October 29. Copies of the regulations have been received by highway officers here. County and town superintendents, under the new regulations, may recover fines of from \$10 to \$100 for violations of the regulations. The first regulation prescribes the use of traction engines, road engines, automobile trucks and other power vehicles, the face of the wheels of which are fitted with flanges, ribs, clamps, cleats, lugs or spikes. In the case of traction engines and road engines, such vehicles shall be permitted to pass over the highways, provided that cleats are fastened on all wheels, not less than 2½ inches wide and not more than 1½ inches high, and so placed that not less than two cleats on each wheel shall touch the ground at all times, and the weight shall be the same on all parts of the cleats. The regulations limit the weight of all traction engines, steam rollers, automobile trucks and other power vehicles to 14 tons, which includes the vehicle and load. A special permission must be obtained from the state commissioner of highways to move any heavier load than 14 tons and it is also provided that no weight in excess of eight tons shall be carried on any one axle of any vehicle. A limit of 800 pounds upon an inch in width of a tire is also placed on all power vehicles. Any weight in excess of 800 pounds upon an inch of tire is prohibited unless permission is first obtained from the state commission of highways, and under such restrictions as the commission may prescribe. The width of vehicles is regulated by a provision that no power vehicle shall be operated upon any state or county highway of a greater width than 90 inches, except traction engines, which may have the width of 100 inches. It is provided that no traction engine, automobile truck or any other power vehicle carrying a weight in excess of four tons shall be operated upon any state or county highways at a speed greater than 15 miles an hour, and no such vehicle of weight in excess of six tons including the vehicle shall be operated upon any such highway at a speed greater than six miles an hour when such vehicle is equipped with iron or steel tires, nor greater than 12 miles an hour when the vehicle is equipped with tires of hard rubber or other similar substance.

Big Paving Work Completed.

Chisholm, Minn.—This week the paving crews will be laid off as the contract has been completed. The concrete work has been finished and all that now remains is the laying of about a half a block of creosoted blocks. Work on sewer and water mains will continue until freezing weather, as much remains unfinished. Between three and four miles of paved streets is the record for Chisholm this season, according to the statement of the village engineer. Twenty-six thousand two hundred square yards of creosoted blocks were laid, the work all being done under the direction of the engineer and paid for on a day labor basis by the council. Contractor Coons, who has the contract for the excavation for the garbage disposal plant, has had a crew of men working for thirty days excavating in solid rock on the shores of Longyear lake. The contract will reach well into next year before it is finished. Excavation for the clear well on Central avenue and Walnut street has been practically finished on the first contract

of twelve feet excavation and the remaining ten or twelve feet will be done by city labor.

Town Spends \$60,000 for New Roads.

Stuntz, Minn.—Over \$60,000 has been spent by the town of Stuntz on the construction of new roads and the graveling and maintenance of old ones, during the past year, according to the estimates of Town Engineer Prior, who has had charge of the work. Eighteen miles of new road were built during the season, the majority by contract. Six and a half miles of old road was graveled and the remainder have been subjected to careful supervision. The new road work cost on an average \$2,200 a mile while the graveling was paid for at the rate of about \$2,500 a mile. With the maintenance of the old roads the total amount expended will exceed \$60,000. Next year will be an even busier year in road building according to the engineer. With the addition of two new townships, 56-20 and 56-21 to the town of Stuntz, a territory will be taken in that is practically without trails. There will also be an immense amount of work north of the village and additional stretches on the judicial road will be completed. It is estimated that over twenty-five miles of new road will be constructed.

State Road Plans for Lycoming County, Pa.

Williamsport, Pa.—Four new state road routes are to be added to the highway system of Lycoming County. These will come as the result of legislation approved by the governor some months ago. All told, the bill placing four additional routes on the map of Lycoming County increased the number of state maintained roads in the commonwealth by 78. The number of routes provided by the Sproul bill, approved in 1911, was 296, embracing some 8,000 miles of highway. These are all now under the care of the state highway department. The 78 new routes are to be taken over June 1, 1915. The four routes belonging to this county are Nos. 303, 321, 332 and 353. Route No. 303 begins at Iola, Columbia County, on Sproul route No. 239, and runs through Pine Summit and joins route 19 a mile north of Muncy. It passes through the southern portion of the county and will relieve several townships of the maintenance of a piece of road by no means local in character, but forming part of through route from Lycoming County to Columbia County, where it connects with an extensive system of roads leading to Luzerne and Schuylkill Counties. The taking over of this piece of road by the state means the opening up of a large section of country whose roads are not passable under present conditions at all seasons of the year. Columbia County does a considerable amount of business with the city of Williamsport. Under the Sproul bill a through route from Muncy to Bloomsburg was provided, but it left out of consideration a large section of the southeastern part of Lycoming County and a considerable area in the northwestern part of Columbia which will be opened up by the improvement of route No. 303. Route No. 321, although not in the county, is intimately connected with the Lycoming County roads as to be practically a part of them. It opens up a section of Sullivan County badly in need of improved roads. It runs from LaPorte to Eagles Mere, thence to Muncy Valley, Beech Glen, North Mountain, the Columbia and Sullivan County line and to a connection with route No. 16 in Columbia County. Route No. 16 leads to Bloomsburg. The new route also affords better access to Benton from this county. It is really a link in the road system of Lycoming, Sullivan and Columbia counties. Route No. 332

will afford an outlet to Nisbet and the Bastress region in this county, which has long been demanded by the traveling public. The road begins near Collomsville, on route No. 176, and extends by way of Nisbet and DuBoistown to South Williamsport. Route No. 353 will relieve the townships of Piatt and Mifflin of the maintenance of the state aided road built from Larry's Creek station on the New York Central Railroad to Salladasbug and will also afford access to the northern part of the county by a short route. It connects with route No. 21 at Steam Valley. It will afford residents of Jersey Shore a short cut to the Liberty region and into Tioga County generally. At present Jersey Shore people who desire to drive into Tioga County generally travel to Newberry, thence to Trout Run and thence to Liberty. When route No. 353 is improved across county to Steam Valley it will shorten the distance many miles.

Expert Opinion on New York State Highway Specifications.

Albany, N. Y.—For the purpose of getting the best expert opinion on the specifications to be used in the construction of highways in the State of New York, John N. Carlisle, Commissioner of Highways, has had proofs of the proposed specifications, prepared by the Board of Consulting Engineers, sent to all the County Superintendents in the State, Division Engineers, and all other persons who have been interested in highway work. The specifications, as prepared, are tentative and subject to alteration and amendment, and Mr. Carlisle will hold a public hearing on them at the office of the Highway Department. In sending out the specifications Mr. Carlisle has requested all persons to make any suggestions as to amendments which might be beneficial, either at the hearing that has been called, or in writing so that they will be received by him before the date of the hearing.

SEWERAGE AND SANITATION

Typhoid Continues.

Providence, R. I.—At least one-half of the members of the Rhode Island party to the Perry Centennial celebration at Put-in-Bay are ill with typhoid fever. Twenty of the cases scattered over various parts of the State are critical and there have been two deaths, one in New York and one in this city. An examination of the members of the Third Company by Dr. Frank A. Fearney, Captain of the Hospital Corps of the National Guard, disclosed that at least 50 per cent. of them were suffering from symptoms which would point to cases of walking typhoid. The medical department of the State has furnished anti-toxin to vaccinate the members of the military commands who went to Put-in-Bay. It is also furnishing free treatment to the members of the State party. In the Newport Hospital are fifteen members of the Newport Artillery and one naval reserve. There are several cases in the Rhode Island Hospital in this city, and others are ill at their homes.

Hadley, Pa.—The little town of Hadley is sorely afflicted with an epidemic of typhoid fever. One-half of the 200 inhabitants are afflicted.

Warsaw, Ind.—Typhoid fever is taking an alarming hold in this community and local health authorities say there are more cases than ever before in its history. Five patients are confined in the McDonald hospital in Warsaw. There are at the present time a dozen or 15 cases and one or two new patients are reported each day. Among those afflicted are a number of prominent people from Winona lake.

Richmond, Ind.—The source of infection which has caused twenty-seven reported cases of typhoid fever in Richmond, has not been positively fixed. The dairy ordered closed by the health department, because it was believed the infection had its origin in a spring, the water of which was used for cleansing milk bottles, probably will resume business. The spring in question is well protected. The presence of so many cases of typhoid fever, however, has caused unusual activity on the part of health officers, and while they do not assert positively that the disease had its origin in the milk supply, there is to be a rigid inspection made along this line. It is probable the

health department will require that all bottles used by dairymen in the distribution of milk be sterilized by the steaming process to insure perfect cleansing.

Erie, Pa.—Steps to prevent the threatened spread of typhoid fever in the city have been taken by the health board when the purchase of typhoid vaccine, enough to inoculate twenty-five persons was authorized. Persons who have been subjected to typhoid influences will be immunized with the vaccine if they apply to Health Officer Wright. For the indigent the operation will be performed free. For those who can afford it the price will be \$1. In reporting upon the typhoid fever situation in Erie, Dr. Wright, health officer, said that so far this month eight cases had been reported. He said he did not think the city water was responsible for any of them, but that they were contracted from other sources. Dr. Wright showed analyses which proved that the bay water is polluted. Dr. Walsh, chairman of the committee appointed to investigate the market house, reported that conditions there were positively filthy. The market house problem was discussed at length by the health board members with the result that Health Officer Wright was authorized to commence legal proceedings to have the nuisance abated. It was felt that the situation called for drastic action and Dr. Wright was instructed to commence proceedings at once. The health officer reported that a census of barns and stables was being made by the department and that a detailed report would be submitted later. In instances where such places are unnecessarily filthy, a general cleaning up will be demanded by the health department. Reports of the health officer and the plumbing inspectors were submitted.

Pulaski, N. Y.—Typhoid fever exists in the eastern end of Oswego county and an epidemic is threatened in the vicinity of Stillwater, where the big dam for the Salmon River Power company is being built. So far as can be learned there has been but one death from the threatened fever epidemic. The threatened typhoid epidemic is the natural result of the severe drought of this season, which has prevailed throughout the country, many of the wells from which are secured a supply of water for domestic purposes becoming low, the wells being situated in sections not provided with a city water works. Thus far six or eight cases of typhoid fever have materialized in the vicinity where the work is in progress on the dam construction at Stillwater, in the town of Orwell. Samples of the water have been sent to Albany to determine its condition. It is quite probable that the State Health Department will take the matter up.

Threaten to Leave Because of Sedimentation Plant.

Yonkers, N. Y.—Residence property worth approximately 15,000,000 will be depreciated one-third in value if the proposed sedimentation plant for the Bronx Valley sewer is erected in Lincoln Park, according to speakers at a taxpayers' mass meeting held in Yonkers. Threats to quit the city if the plant was built were made. Residents of Lowerre, Caryl, Parkhill and Lincoln Park to the number of 150 were on hand to protest and to raise funds to prosecute the suit for a permanent injunction restraining the commission from erecting the plant on the site selected.

Several Epidemics Threaten South Bend, Ind.

South Bend, Ind.—The city is in grave danger of a serious epidemic of contagious and infectious diseases according to a statement made by Dr. W. G. Wegner and Dr. J. B. Berteling, county health officers. Typhoid, diphtheria and scarlet fever have increased rapidly in the last few days and stringent measure are being taken in the schools to prevent an epidemic among the children. Diphtheria is particularly bad in the Oliver school district. Many children are ill with sore throat and five persons, including one teacher, have contracted the disease within the last three days. The school has been fumigated and a medical inspection made. The present trouble, according to authorities, has not only served to emphasize the need for medical inspection as a regular practice in the South Bend schools, for had the system been in use the epidemic would have been stamped out and contagion prevented immediately. Eleven cases of typhoid have been reported and six of scarlet fever. Warnings are being issued to parents to use every precaution to prevent further contagion.

Jersey City to Have Bacteriologist.

Jersey City, N. J.—The Board of City Commissioners has approved the proposal of Mayor Fagan that Thomas B. Stillman of Stevens Institute, Hoboken, be appointed city bacteriologist at a salary of \$2,000 a year. The mayor explained that very frequently in the city health department bacteriological examinations have to be ordered and these cost the city quite a sum annually. The mayor, who is at the head of the health department, thought that if a bacteriologist were regularly employed the city could save money. He will be at the disposal not only of the city health department, but of all the city departments in Jersey City. The plan is to have a laboratory established by the city on up-to-date lines and to equip it for effective work.

WATER SUPPLY

Water Famine.

Bloomington, Ind.—"Bloomington is facing the worst water famine in many years, and the water works plant has closed down," said Superintendent Helfich of the plant. Many stone mills and small manufacturing plants will be forced to close down. Hundreds of homes will be entirely out of a water supply for drinking and toilet. The Showers' factory and other large plants are making arrangements to bring water from White river at Gosport over the railroads. The famine is not affecting Indiana University, as that institution last year built its own water system.

Paris, Ky.—The people of Paris are greatly alarmed over the lack of water, and it is stated the supply cannot last more than a few days unless a hard rain comes soon. The water of Stoner Creek, from which the city draws its supply, has been gathered into a small pool, and the officials of the Paris Water Company announce that there is barely enough to last a few days. A small supply will be held in case of fire, but should there be a large conflagration water would not last until the fire was extinguished. The Paris Ice Manufacturing Co.'s plant has been forced to close on account of inability to obtain water. The people are face to face with a serious problem, and the poorer citizens are in dire need of drinking water.

Madisonville, Ky.—Madisonville is facing the worst water famine just now in the history of the town, and unless heavy rains fall within the next month the chances are that the city light plant and the city water works will be compelled to close down. Three lakes in the city, the main source of supply for various industries, are practically dry. For the past month the Louisville & Nashville Railroad Company has been running two trains per day from Henderson, hauling 20 tank cars per trip to this city, the water to be used at their junction half a mile north of the city for watering engines, the large lake there having been exhausted. Last week the lake at the Sunset coal mines, the main supply for the city light plant and for two of the largest mines in the county, went dry, and water for both mines and the light company has since been shipped in here from Henderson, at an enormous expense. In a statement one of the members of the Board of Public Works said that at the present rate the city would be bankrupt, and it was doubtful if the water shipments were continued from Henderson unless the light patrons would consent to an increase in rates for the time being. Aderson lake, the source of the independent city water plant and the local ice plant, is practically dry, there remaining perhaps enough water to run them two or three weeks longer. A hard rain has not fallen here in six months.

The Los Angeles Aqueduct.

Los Angeles, Cal.—Owens river water has been turned on and reached the Dry Canyon reservoir, 38 miles from Los Angeles, in one and one-half hours. The aqueduct water was turned into the tunnel that conveys it from the San Francisquito canyon through the mountains to siphons and flumes into the Dry Canyon reservoir, and the first wave of the crystal stream reached the Dry Canyon reservoir without trouble. Mayor Rose and Councilman Betkouski returned from their trip to the Fairmont reservoir to release the water to the Elizabeth lake tunnel. Both

were enthusiastic over the great achievement of bringing the Owens river water more than 200 miles from the intake to the Fairmont reservoir without mishap. William Mulholland, chief engineer of the aqueduct, remained on the aqueduct to watch developments. He will stay on the job for about two weeks, testing every feature and personally seeing that everything is ready for the first run of the water to San Fernando reservoir November 5 and 6.

Reservoir Dam Breaks After Rain.

Archer City, Tex.—The excessive rains of the past two weeks caused the city reservoir dam to break. This is the second time this dam has broken this year. Besides losing about 70,000,000 gallons of water at the other break it required about \$1,000 to repair the dam. At the time the last break occurred there was approximately 50,000,000 gallons of water in the reservoir.

Water from Mine Shaft.

Barnesboro, Pa.—An apparently unfailing supply of water, which, by analysis, has been shown to be pure, has been turned into the mains of Barnesboro. It is being pumped from the shaft of the Madeira-Hill Coal Mining Company, and the arrangements will be merely temporary until the supply of water from wells recently drilled can be turned into the mains. The town has practically been without water, except from wells and springs, for months. The water from the mine shaft has been analyzed and found to be sufficiently pure. A pump owned by the coal company has been installed at the shaft and the water is pumped about one-fourth of a mile to the mains of the borough. The supply of water is sufficient to meet the demands for all domestic purposes and for use in case of fire. The borough will pay a nominal sum for the water.

Enjoins Increase in Meter Rates.

Camp Hill, Pa.—The Riverton Water Company, of Lemoyne, was made a defendant in a bill in equity filed at the Cumberland County Court at Carlisle. The company was enjoined from increasing water rates to meter consumers in Camp Hill and from shutting off the water from such consumers. The plaintiffs representing the citizens of that borough are George C. Gochbauer, Dr. W. F. Kendall, W. B. Keim, Fred Cleckner and H. M. Askin. The Riverton Water Company is cited to appear at the court 15 days after service and to file answer in the Prothonotary's office within 30 days. The bill goes into a brief history of the original water companies supplying this territory and the subsequent mergers. It is virtually cited that the Riverton Water Company accepted the ordinance of October 22, 1897, and complied with its several conditions, which limits the rates to those in Harrisburg. The water company attempted to put into effect July 1 to consumers who have the meter rate and use up to 5,000 cubic feet a rate of 30 cents per 100 cubic feet, or a minimum of \$10 per annum.

STREET LIGHTING AND POWER

Seven Miles of Street Lighting Last Year for Capital.

Washington, D. C.—Improved incandescent electric lighting was installed on approximately 7 miles of street in the District of Columbia during the last fiscal year, according to a report the commissioners received from Walter C. Allen, electrical engineer. Altogether, 582 100-candlepower incandescent electric lamps were installed. The district had in use July 1 last 16,673 lamps of every character, this being an increase of 820 over the number operated during the preceding fiscal twelve months, the report shows. Mr. Allen refers to the suit of the District of Columbia against the Philadelphia, Baltimore & Washington Railway Company to compel payment of sums expended by the District for maintaining lights along the right of way of the company, which is pending before the Supreme Court of the United States. If this case is decided adversely, a new suit will be entered, he states, under the provision of the District appropriation act for 1914 requiring all railroad companies other than street railroads to pay the District for the lighting of streets for their full width through which the company's tracks may be laid.

No More Natural Gas for Kansas.

Lawrence, Kan.—According to City Attorney J. H. Mitchell, who represented Lawrence at the gas session in Kansas City, the conference proved that gas has played out and that Kansas City must turn back to wood and coal. Attorney Mitchell is in favor of the city of Lawrence continuing to burn gas as long as it lasts, but at the present rate, and to oppose any effort made to increase the price. According to Mr. Mitchell, the Kansas Natural Gas officials have lost hope. In a statement made by C. A. McBeth, manager of the company, that official declared that the Kansas Natural Gas Company was doomed, and sooner or later the company must go into bankruptcy. Mr. McBeth held forth no hope of the company's being able to supply sufficient gas to accommodate the cities now using this fuel. The proposition made by the company was to charge the present rate of 27 cents per thousand for the first 10,000 feet and to increase the rate to 75 cents per thousand for all over 10,000 feet. It was said that this would limit the use of gas to cooking and lighting purposes. It was admitted that while this would serve to conserve the gas supply it would not increase the amount available. On the whole it seems that Kansas cities have enjoyed the luxury of natural gas about as long as possible.

Natural Gas for Abilene, Tex.

Abilene, Tex.—A contract has been signed in Fort Worth between the Pioneer Gas Company of Fort Worth and the Abilene Gas & Electric Company of this city whereby Abilene will have natural gas by the first of January, 1914. The contract calls for high pressure natural gas, which will be piped from the Moran fields, a distance of 40 miles, via Baird into Abilene. This right of way for the pipe line has already been secured and the Pioneer Gas Company agreed to ship one mile of 8-inch pipe each day, starting at once, to be used on this line. This pipe line will parallel the Texas & Pacific Railroad from a point two miles west of Putnam and from this point what is known as a stub will be built into Cisco. The local company states that it will immediately extend the present gas pipes over the entire city. The present mains do not cover over one-half of the residence districts. The rate which will be charged has not been announced, but officials say it will be materially reduced from the present rate for artificial gas.

FIRE AND POLICE

Auto Chemical Satisfactory.

Wilkes-Barre, Pa.—Before the members of the fire committee of councils and a crowd of several hundred persons the new Pope-Hartford combination automobile chemical engine recently purchased by the city was tested. The new apparatus was tested in all departments, especially the pressure in throwing a stream of chemicals, and proved satisfactory. It was also tested out on the hills of the city. The members of the police committee expressed their satisfaction with the new apparatus. A meeting of the committee on accounts has been called and it is probable the members will vote to pay the bill of \$5,000. The machine when fully equipped will weigh close to 10,000 pounds. The truck contains a 50 horsepower engine, two extension ladders, three chemical tanks, besides a self-lighting and starting attachment, helmets, ropes and axes.

Police Budget of Binghamton.

Binghamton, N. Y.—Increased efficiency is the keynote of the annual estimate of expenses for the police department which Commissioner Hiram Goldsmith has filed with Mayor Irving, chairman of the Board of Estimate and Apportionment. Commissioner Goldsmith on recommendation of Chief of Police Goodrich applies to the city for the installation of a \$2,500 police telegraph and telephone signal system. Another new item in Commissioner Goldsmith's estimate is an application for two new motorcycles at \$500; and it is also asked that the city furnish \$500 for special criminal investigations where it is impossible to use regular members of the police force. The total amount of the budget is \$60,950. This is \$3,505 less than the esti-

mate laid before the board by Commissioner Goldsmith last year, which was cut to \$53,881.32. Asked as to the necessity for a police signal system in this city, Chief of Police Goodrich said that the taxpayers and citizens now are paying for protection that they are not getting. For example, he explained, when a householder telephones a summons to police headquarters and demands that an officer be sent to put a stop to some nuisance it is necessary to phone to some store on that officers' particular post and have the storekeeper hunt around the neighborhood until he finds the officer. Chief Goodrich said that Binghamton is the only city of its size in the United States without a police signal system. Queried as to the expense of permanently maintaining the system, the chief said he considered that it could be kept in repair and working order by the service squad of the fire alarm system. It is believed that \$2,500 will provide ten signal boxes, which Chief Goodrich thinks will be sufficient for present needs. In support of the request for two new motorcycles, Commissioner Goldsmith and Chief Goodrich point out that the automobile traffic since the purchase of the present machine, two years ago, has more than doubled. Chief Goodrich says there have been innumerable technical and annoying violations of the traffic laws which could be stopped by additional motorcycle men. Other items in Commissioner Goldsmith's estimate compared with that of last year are:

Salary Chief of Police, \$1,800, now \$1,600; salary of chief detective, \$1,500; salary of captain, no change, \$1,200; salary of detective sergeant, \$1,080, now \$1,000; salaries of three patrol sergeants, \$2,280, no change; salaries of 48 patrolmen, \$43,015, was \$43,920 last year; salary of two chaffeurs, \$1,800, no change; doctors' services and medical supplies for prisoners, \$150, no change; for membership and representation in International and State Associations of Chiefs of Police and National Bureau of Criminal Identification, \$125, no change; maintenance of prisoners in city lockup, \$700, now \$500; office supplies, \$200, now \$100; officers' supplies and equipment, \$300, no change; postage, \$100, now \$75; printing, \$250, now \$100; repairs and supplies for auto patrol, \$1,000, now \$500; repairs and supplies for three motorcycles, \$300, now \$90; police chief's stenographer's services, \$150, no change; telephone and telegraph, \$200, now \$100; transportation of prisoners, \$700, now \$900. The estimate has been lowered this year by the withdrawal of the mounted squad which cost \$750 a year to maintain.

Fire Sweeps Nome.

Nome, Alaska.—Fire broke out in the city of Nome, closely following a storm that wiped out a great part of the town. The flames attacked the Pacific Cold Storage plant, where is stored the chief supply of meat for the winter. The fire apparatus was destroyed in the gale. Front street was a seething mass of wreckage into which seas were breaking, while hundreds of homeless persons were struggling to save necessities of life. Receding seas carried away the contents of wrecked houses and stores as well as parts of wrecked structures. The loss is estimated at close to \$2,000,000.

Storm Damages Alarm System.

Sterling, Ill.—As a result of a storm, the Sterling fire alarm system was put out of commission. The injury to the system was caused by the crossing of a high voltage electric light wire. For half an hour the electricity played about the apparatus at the fire station. Luckily, the switchboard was not burned out. A force of electricians was put to work and the damage repaired. The storm also caused considerable damage to the telephone companies, through the blowing down of trees, etc. The crossing of one of the Central Union wires with an electric wire caused the burning out of a number of instruments. Although the storm was of short duration, it was terrific while it lasted, tipping over outbuildings and breaking down trees, etc. So far as can be ascertained, the storm followed the Rock River, extending along the river as far as Wisconsin.

Auto License Revenue Not for Police.

Denver, Colo.—The Denver police department will have to look elsewhere than the automobile license fund for the police pension fund. The city attorney's office, by George Q. Richmond, who will succeed J. A. Marsh as first assistant city attorney November 1, wrote an opinion upon the question for I. N. Stevens, city attorney, in which he held that the automobile license fund, received from the state, must go to the highway fund. The police asked that 50 per cent of the automobile taxes returned to Denver from the

total collected in this county be divided, half to the highway fund and half to the police pension fund, which is running low. Richmond gave it as his opinion that the tax is collected wholly by the state and must be used for the purpose designated, as the state does not have to give any of the tax to the counties. Any taxpayer, he said, could bring suit to enjoin the city council from transferring the fund. The council will have to provide for the pension fund in some other way.

GOVERNMENT AND FINANCE

Commission Government Progress.

Phoenix, Ariz.—By a vote of over three to one the citizens of Phoenix approved of the proposed city charter for the city of Phoenix, and another great step was taken toward providing a business method of conducting the affairs of the city. The vote was light, but it was heavier than many of the opponents of the measure had thought, and the majorities were decisive enough to proclaim the opinion of the majority of the citizens is still in favor of a commission form of government. At the same time there was a lighter but none the less decisive vote in favor of the issuance of bonds to the amount of \$250,000 for floating indebtedness and improvements as well as the much needed city parks. In addition to this, and scarcely less important, is the \$75,000 fire department improvement bond issue also provided for, which will be used to extend and improve the department. A modern department will be installed and there will be a consequent lowering in the insurance rate now being paid by merchants and property owners in Phoenix for their fire protection. The floating indebtedness of the city will be taken care of by the bond issue approved recently. Then there are the park fund bonds, the money from which will be used to purchase parks and open places and to provide for playgrounds and open spaces for the children which were also approved. The task of getting a modern charter for Phoenix has been long and tedious. Nearly two years ago the agitation was started, a committee of citizens getting together to perfect a charter to submit to the people. Following this, with the coming of statehood came the first board of freeholders, who worked hard upon a charter only to have it turned down because of conflicts with the constitution. Then came the enthusiastic organization of the committee of one hundred and twenty-five, composed of non-partisan business men and women who resolved to do all possible for civic betterment. At the permanent organization of this committee, it was decided that the first thing to be done was to go to work on the commission form of government for Phoenix. Consequently when the committees of the big committee were formed, fourteen leading citizens who finally were the second board of freeholders were chosen to go over the document which Governor Hunt had vetoed and fix it up so that it would not conflict with the constitution of the state. When this committee completed its duty the election was held choosing the members to the board of freeholders and the work of drafting the charter which has just been approved was undertaken and finally finished.

Lakeland, Fla.—Lakeland has voted for commission form of government by a decisive majority. O. M. Eaton was re-elected mayor, or what is equivalent to that office under commission form, commissioner-at-large. Commissioners elected were: J. E. Bussard, Guy W. Toph, E. C. Flanagan and H. D. Mendenhall.

Phillipsburg, N. J.—The movement for a commission government for Phillipsburg has received its first impetus, a meeting under the auspices of the Good Government Association being crowded to the doors. Mayor Donnelly of Trenton and Commissioner Brensinger of Jersey City told how commission government had worked to the advantage of those towns, while local speakers criticised the antiquated charter under which Phillipsburg is forced to operate.

Jersey City, N. J.—Commission government in this city was vindicated when a jury in the quo warranto cases in the Supreme Court, before Supreme Court Justice Francis J. Swayze, brought in a verdict that the present city officials had not illegally seized the city government following

their election in June last. The writs were therefore dismissed by the court, and unless the decision is appealed the legality of Jersey City's present form of government is firmly established.

Urge Fundamental Municipal Reforms.

New York, N. Y.—One of the parties in the present campaign is urging fundamental issues for reform and is arguing for the consideration of municipal inefficiency and its consequent evils as being due not so much to haphazard misgovernment as to absence of a constructive program founded on basic principles underlying the needs of the people. The party demands the calling of a charter convention, elected on such a basis that all parties shall be represented in proportion to their voting strength; the charter framed by such convention to be submitted to the voters for approval. In framing this charter the convention would strive for the largest possible measure of home rule; for the extension of the municipal franchise to all adults of both sexes, who have resided in the United States one year and have declared their intention to become citizens; for the vesting of authority and responsibility in a single council, with proportional representation of parties and control by the voters through the initiative, referendum, and recall; and for such extension of the municipal functions as will empower the city to undertake all enterprises of production, transportation and exchange, so that it may, as rapidly as the citizens see fit, displace private trading by municipal trading carried on for the public service. The party, on the question of transportation, points out that there is really no municipal ownership in New York at present, the city only shouldering the cost and responsibility. It demands the immediate municipalization of all surface, elevated, and underground railways and all ferries; the existing plant to be acquired at its physical valuation under the right of eminent domain; additions to be constructed by the municipality as fast as practicable to create an adequate system for the entire city; the whole to be operated by the municipality without profit. The platform takes up the vital question of the high cost of living and points out how the city can remedy conditions. The method is the already well tried and successful one of municipal markets. Municipal markets are proposed on a large scale in connection with large terminal facilities in different parts of the city, under such regulations as will prevent them from being controlled by railway companies and produce dealers and will bring the consumers into close touch with the producers of food, and it is asked that the municipality undertake the provision of fuel, ice, milk, bread and other prime necessities, selling them at such prices as merely to cover cost of production and distribution.

In relation to public works and the city's employees the reformers ask that the city establish wages and hours of labor distinctly better in every case than those prevailing in private enterprise, thus making municipal employment a force for elevating the general condition of labor, and also enlisting their technical knowledge and public spirit in a democratic and efficient administration of public affairs; and that a liberal system of compensation for accidental injury or death and for industrial disease incurred in city employ, and retirement pensions for all aged or disabled city employees be instituted.

It is proposed to elect city magistrates by popular vote and to introduce jury trial in the lower criminal courts in all cases wherein the penalty is confinement in the workhouse or a fine of \$10 or more.

The platform denounces the overcrowded conditions of the public schools and the forcing of school children to leave school before they are eighteen in order to go to work. As a remedy it proposes: the immediate erection of sufficient school buildings to accommodate all the children of school age in all parts of the city; the immediate increase of the teaching force and its maintenance at a ratio of not less than one teacher to every 20 pupils on the register; increase of salaries for teachers so as to encourage competent instructors to enter and remain in the service and do their best work; provision for proper feeding and clothing of all pupils without charge; this to be made as a matter of right, protecting the children from

the stigma of charity; the school authorities to be empowered, in all cases where economic pressure would otherwise compel pupils to leave school before the age of eighteen, to grant pensions conditional on continued attendance to that age; free and adequate medical and dental attendance for all pupils; and the introduction of vocational instruction, not separate from or alternative to general education, but so combined with it as to fit all children for useful labor, for the duties of citizenship, and for the enjoyment of civilized life.

It takes up the housing problem and fire regulations and asks that the municipality as rapidly and on as large a scale as possible erect wholesome and comfortable dwellings to be held as municipal property and let at reasonable rates, so as to counteract the tendency to exorbitant rentals. On the question of public health the platform urges the establishment of sufficient free dispensaries, hospitals, maternity hospitals, sanatoriums and convalescent homes to accommodate the vast number of patients who are now denied proper care through the prohibitive cost of private institutions; the establishment of municipal farm colonies under strict medical supervision for convalescent consumptives, where they shall be properly housed, maintained and employed until such time as they shall become qualified to care for themselves and become self-supporting; the municipalization of the drug business, eliminating the element of profit, with its accompaniment of high prices, adulteration and fraud in the supply of medicines and sick-room necessities; the establishment of municipal day nurseries to provide for the great number of small children who are now left uncared for through the necessity of mothers as well as fathers working for wages; the establishment of municipal laundries, to be operated at cost, in order to promote cleanliness and to take out of the homes a species of work which, when done in the house, involves drudgery for the wives and mothers and uncomfortable and unwholesome conditions for the whole family; the transformation of the complete medical service of the city from a private, charitable and commercial to a strictly public basis to the end that the maintenance of health may be made a public service, rendered to all the people as freely as is now the use of the streets. As improvements in the opportunities for recreation a sweeping liberalization of the present antiquated Sunday laws; establishment of free grounds for outdoor sports, public beaches and seaside parks, municipal concert and dancing halls, and other provision for recreation; extended use of the schools and other public buildings for social gatherings, discussion of public questions, registration and elections, and other popular uses are suggested.

The ever-present menace of unemployment, the platform says, calls for the establishment of free municipal employment agencies to take the place of the private agencies; the establishment of a system of unemployment insurance, conducted as far as possible through workmen's organizations, with liberal financial aid by the municipality; in times of industrial depression the city take special measures to relieve as far as possible the competition in the local labor market by the construction of public works and launching of municipal industries.

In order to carry out these demands the obtaining of the necessary revenue is provided for by the strict enforcement of the general property tax; assessment at its true value of all property, including the large amounts now held exempt under the guise of religious or other quasi-public uses; and a tax on land values so calculated as to appropriate to the public service all increment arising from the growth of population and public improvements.

\$3,100,000 a Week to Run New York.

New York, N. Y.—Comptroller Prendergast has issued his report of the city's financial activities for the eight months of the current year ended on September 1, as well as a separate report showing the operations for the month of August. From January 1 to August 31 the city borrowed \$144,591,396 on revenue bonds in anticipation of the collection of taxes, and redeemed or repaid \$122,673,894.

The outgo or payments made by the city are grouped in the report to show the total taxes paid to the State of New York and the expense of the city government. These two items called for \$99,565,791 during the first eight months of 1913, as compared with \$93,033,034 during the corresponding period of 1912. In outlays for public improvements and equipment \$57,233,555 was paid out. Interest on the city debt called for payments aggregating \$28,539,884, of which \$4,927,519 was paid into sinking funds on the city's securities held by them. In the redemption of corporate stock notes special revenue bonds and revenue bonds, \$224,821,325 was disbursed. In addition, the city also purchased \$5,559,330 of its own securities which had been sold to the public. The total cash receipts during the first eight months of 1913, excluding all transactions between the city treasury and the sinking funds, aggregated \$364,024,261, and the cash payments amounted to \$364,000,197. The cash balances in the city treasury and sinking funds on September 1 aggregated \$25,988,511, or a little more than \$24,000 in excess of what it was on the first of January. The total expenditures from January 1 to August 31 on account of payrolls aggregated \$69,663,894.

Of this \$23,684,123 was for educational purposes. The payrolls of the Police and Fire Departments, the Armory Board, the Department of Correction, etc., required \$16,083,674. In health conservation and sanitation the payrolls aggregated \$5,958,180. The new Board of Water Supply took \$1,295,915; the Public Service Commission, \$986,541; the Department of Parks, \$1,563,172; the Department of Docks and Ferries, \$1,926,786; the Water Department, \$2,741,656; the Department of Public Charities, \$886,615, and the Borough Presidents' payrolls aggregated \$5,722,035.

The contract outlays during the first eight months of the year aggregated \$52,042,921, of which \$10,379,260 was expended on the new water supply and \$9,637,326 on rapid transit construction. The contract outlays for education purposes aggregated upward of \$2,700,000. Through the Borough Presidents' offices there was upward of \$9,000,000 expended in contracts for improvements of various kinds. The contract outlays under the supervision of the Department of Bridges aggregated upward of \$2,700,000; for Docks and Ferries, \$1,415,000.

Among the receipts during the period was the sum of \$1,375,170 from the Interborough Rapid Transit Company, representing three quarterly payments to the city as the lessee and operator of the present subway system, and \$3,470,000 from the New York Municipal Railway Corporation, the corporation formed by the Brooklyn Rapid Transit Company, as a part of its contribution toward the construction of new additions to the subway. The gross funded debt of the city held by the public on August 31 aggregated \$854,664,256, of which, the report shows, approximately \$240,000,000 is in self-carrying bonds. As an indication of the immensity of the city's transactions the report shows that from January 1 to August 31 this year the vouchers registered in the Department of Finance aggregated \$422,717,887. These totals were reduced by cancellations and adjustments in the Comptroller's office by the sum of \$3,414,250. The table dealing with the tax of 1912 shows that the total levy amounted to \$150,956,705.

Of this \$133,946,733 was upon lands and buildings, \$7,602,095 special franchise tax, \$3,109,931 was on real estate of corporations, and \$6,297,944 was the personal property tax. The collections up to Dec. 31, 1912, from the 1912 tax levy on lands and buildings aggregated \$114,037,161; from special franchise tax, \$4,920,789; from real estate of corporations, \$2,618,846, and from personal property tax, \$4,238,677. The cancellations of taxes on lands and buildings amounted to \$111,266, and on special franchise taxes, \$35,868.

On Dec. 31, 1912, \$7,515,007 of the tax levy of 1910 was still outstanding and unpaid, of which \$3,096,538 was against lands and buildings, \$2,535,693 against special franchise taxes, \$179,356 taxes on real estate of corporations, and \$1,903,419 taxes on personal property.

Extensive Municipal Ownership in Amsterdam, Holland.

Amsterdam, Holland.—This city owns the gas, water and electricity works, the street railroads, the telephone system, many of the docks and a large amount of ground in the central business section, which is leased for building purposes. Considering all this valuable property, the municipal debt, which stood at \$50,625,146 on January 1, 1913, is not high for a city of 591,000 population. The debt was reduced last year by \$1,200,000. The annual interest ranges from 2½ to 4 per cent. The receipts and expenditures of the city for 1914 are officially estimated at \$15,649,811, an increase of nearly \$800,000 over the estimate for 1913. Receipts and expenditures are always estimated at the same amount. Over a third of the receipts

come from taxes; over a fifth from the municipal undertakings (gas, electricity, street cars, water, etc.) and from rent of ground owned by the city and let on long leases to owners of buildings thereon, these two sources contributing more than half the receipts. The largest expense item, \$3,500,000, is for interest and payments on principal of debt; the next largest is \$2,800,000 for educational purposes; poor relief and the support of charitable institutions take \$1,200,000; while police, street lighting and fire department together take about the same.

RAPID TRANSIT

San Francisco Bay Communities Want to Own Transit Facilities.

Oakland, Cal.—The mayors of eight municipalities and the members of the boards of supervisors of Alameda and Contra Costa counties assembled at the call of Mayor Frank K. Mott of this city, in the council chambers in the new city hall, to formally consider plans for the formation of a metropolitan traction district and the acquisition of the street car lines and ferry system of the San Francisco-Oakland Terminal Railways by the east bay communities. In addition to the mayors and supervisors present, members of the boards of trustees and city councils in the various cities interested were also present. Mayor Mott, who acted as chairman, addressed the meeting first, calling the attention of the civic officials to the problem which, he said, is the most momentous which the communities on the east side of San Francisco bay have ever been called upon to face. He pointed out the necessity of the purchase and municipal ownership of the vast network of electric lines which furnish transportation to the half million residents of western Alameda and Contra Costa counties. He said that the present owners of the street car lines, the F. M. Smith interests, are facing a grave financial crisis and that it is a question whether they will be able to survive it successfully without sacrificing some of their vast holdings. Mayor Mott warned the mayors that the street car lines should not be allowed to fall into the hands of a group of capitalists who are not interested in the growth of the cities, having no money invested in them. Under such conditions car lines would not be extended, and the earnings would be paid out as dividends. He said he is in favor of municipal ownership and that two questions were involved in this. One is the legislation which may be necessary before a metropolitan district can be formed, and the other is the cost to the communities involved. The latter question is one which will not cause much trouble. The district will be so large and the period of bond redemption will extend over so many years, that the purchase of the street car lines will mean but a few cents, possibly not more than a cent, on the \$100 valuation, to the taxpayers. This is nothing compared to the profits to be derived. The other question is one to be settled by the civic attorneys. Representatives of all the communities interested then spoke, as well as representatives of the boards of supervisors. Among those present at the meeting were the following: Charles D. Heywood, mayor of Berkeley; Charles W. Heyer, president Board of Trustees, Hayward; Hugh Craig, president Board of Trustees, Piedmont; J. J. Gill, president Board of Trustees, San Leandro; W. H. Christie, president Board of Trustees, Emeryville; Frank J. Roberts, mayor of Albany; O. R. Ludewig, mayor of Richmond; John F. Mullins, chairman Board of Supervisors, Alameda county; J. H. Trythall, chairman Board of Supervisors, Contra Costa county; Charles H. Schween, president Board of Trustees, Pleasanton.

New York's Subway Traffic.

New York, N. Y.—A summary of the traffic on the city subway and the Manhattan and Bronx elevated railroads was made public by the Public Service Commission for the First District during the week. It shows that the subway for the year ended June 30, 1913, carried 327,471,510 passengers and the elevated lines for the same year 306,845,006. The daily average was 963,152 passengers on the subway and 902,485 passengers on the elevated lines. The increase for the year was 24,497,654 on the subway and 2,574,165 on the elevated lines.

City Street Cars in England Successful.

Bradford, England.—The fifteenth annual report of the tramways department of the Bradford Corporation shows remarkable development of the municipal tramways in Bradford since the opening of the first line in 1898. The annual receipts in 1899 amounted to \$43,166, while in the year ended March 31, 1913, the receipts amounted to \$1,455,580. The number of passengers carried annually increased in that time from 1,452,000 to 62,005,976, or, in other words, the population of the city has been carried 175 times. The average distance a passenger may travel today for 2 cents is 1.6 miles, or an increase of 52 per cent on the distance in 1898. The employees now number 1,232 and the present wages average 32s. (\$7.79) per week. The operating difficulties of the Bradford tramway system are said to be of a rather extraordinary character. From the commercial point of view the heavy operating expenses, due to steep gradients and constant wear and tear, are unavoidable, as is also the disadvantage of a very low density of population per route mile. In spite of this, however, a good service of cars is maintained, all dues and demands are met, good wages are paid, and in addition substantial amounts are contributed annually to the relief of city taxes, and the reserve and renewals fund amounts to about \$437,985. As to future developments, the report states that it may be interesting to consider what is likely to happen to the tramways system in the next 15 or 20 years, in which time the bulk of the financial liability of the corporation, as far as its tramways are concerned, will be paid off. (The loans for tramway purposes were granted generally for 30 years, so at present nearly half the capital borrowed has been repaid.) The value of the system as a transit system will be quite as high, if not higher, at that time as it is to-day, assuming that some newer and better transit scheme does not in the meantime come on the market which will render the tramways obsolete. As to the petrol-propelled vehicle (motor bus), unless it develops more than now seems possible it is not likely to supersede tramways in Bradford. There are to be various extensions of workshops, stores, etc., at the Thornbury Depot. A building for the accommodation of engineering machinery and blacksmiths' shop is now in hand at an estimated cost of \$28,570. During the year the parcels department handled 716,157 parcels, as compared with 625,914 during the previous 12 months.

Municipal Railway Traffic in Vienna.

Vienna, Austria.—A report prepared by the Vienna Chamber of Commerce, on the traffic of the municipal street railways in 1912, shows 165 miles of route, 153 of which were electrically equipped and 12 miles operated by steam. The electric lines carried 309,484,129 passengers, an increase of 9.3 per cent, the revenue being \$9,863,076, or 9.6 per cent increase. Traffic decreased on the steam-driven lines from 4,715,390 passengers in 1911 to 3,124,057 passengers in 1912, the revenue last year being \$134,468. The motor omnibuses covered 128,445 miles, a 2½ per cent increase, and carried 551,493 passengers, an increase of 22,537; receipts were \$18,802, an increase of 8½ per cent.

2,500 Motor Busses in London.

London, England.—The London General Omnibus Co. now has 2,500 motor busses in and around London and others are being built with great dispatch at the company's factory at Walthamstow. There are over 30 garages for these cars. A standard motor bus has been designed, as the company assumes that the experimental period has been passed. Originally the company bought its busses abroad, but now the Walthamstow factory can produce all the vehicles that are ever likely to be required. The modern motor bus has a 35-horsepower motor and its chief improvement is in quietude of running—indeed, this advantage is being questioned as a danger, because there is so little noise to herald the approach of the machines. The company trains its own drivers, finding the most suitable recruits from men who have driven heavy vehicles. Every motor bus is removed from the street once every ten days to be thoroughly overhauled. The company has its own detectives to watch the drivers and to warn those that show signs of negligence.

Half Fares for "Straphangers."

Elberfeld, Germany.—A German street car line operating between cities in Rhenish Prussia charges only about half the regular passenger rates to those who stand. The fare from Elberfeld to Werden, a distance of about 10 miles, is 30 cents for those having seats and 17 cents for those standing. The round trip rate costs 50 cents if the passenger has a seat, while those who remain standing pay only 25 cents. The trip from Elberfeld to Werden takes 1 hour and 50 minutes.

MISCELLANEOUS

Municipal Storage in Cleveland Successful.

Cleveland, O.—The municipal cold storage plant has made a successful beginning in the fight against the high cost of living in Cleveland. The city's cold storage plant is open to the humblest citizen as well as the biggest commission merchant. Small quantities of eggs, butter, cheese, fruit and the like can be stored in it by individuals at a nominal price. A Cleveland housewife can buy a barrel of fine apples to-day for about \$2 and put them in the city's cold storage plant until May, and the storage cost will be only 40 cents. In the spring, when dealers want \$6 a barrel for them, she and her family can eat their fill at one-third that price. She could store away 100 pounds of good butter along in June at 20 cents a pound and take it out in February when everyone else is paying 40 cents a pound. Only half the city's west side ice plant is in operation, and it will earn \$4,600 this year, above all expenses. Just now there is in cold storage, much of it placed there by individuals, 6,000 bushels of cherries; nearly 40,000 pounds of butter; 44,700 pounds of cheese; 3,700 bushels various fruits; 42,200 dozen of eggs.

Building a New City.

Solano City, Cal.—Contractors are now studying the specifications for nearly half a million dollars' worth of street, sidewalk, curb and sewer improvements for Solano City, and an early award of contract is expected. The beginning of building operations is awaiting the settlement of street grades and the installation of the streets and sidewalks in the business district. The engineers, in presenting their plans, have looked forward to the future growth of the city. The sewer system is laid out with a view to future connection, with an outfall system that will be necessary when the population passes the 5,000 mark. The same rule applies to the water piping. At present a six-inch feed from the filtration plant to be located at the reservoir will enter the city at the head of Main street and serve the first residence section and all of the business district, but the plans now include ten and twelve-inch feeds to come in at other points and, with additions to the filtration and storage systems, eventually supply a city of 75,000 people. The Solano street sections are following Mark Daniels' original plans for a city beautiful. In all of the wider streets parking strips are provided for, either in the middle of the roadway, or on each side of the street. These are to be planted with shade trees. The street surfacing will be of five-inch oiled macadam, rolled as smooth as asphalt. The service of the Oakland, Antioch and Eastern to Solano City, making the run on schedule time to the minute and with seven trains a day each way, has proved a boon to prospective lot and land buyers. The running time from San Francisco via the Key route ferry is now 2½ hours.

Towns Celebrate Anniversaries.

Ossining, N. Y.—This village is celebrating its one hundredth birthday. Ossining is proud because it has a population of 11,000, and because soon it is going to have a \$20,000 Carnegie library, a \$75,000 municipal building, a \$30,000 addition to its \$150,000 hospital, a \$200,000 railroad station and a \$150,000 sewer system. The celebration closed with a parade and an oration by Chauncey M. Depew.

Woonsocket, R. I.—The celebration of the twenty-fifth anniversary of the city of Woonsocket, twice postponed, was finally held, its success being in no way marred by the cloudy weather. The features of the day consisted of

a street parade and a field day at Clinton Oval, in which 160 of New England's foremost athletes had entered. The street demonstration was viewed by thousands, many from out of the city, and Clinton Oval was crowded for the athletic events. A few of the mills closed for the day and others ceased operations at 11 a.m. and noon to give their employes a chance to participate in or view the parade. A number of business houses were decorated in the national colors and banners, badges and other features marking the celebration.

Municipal Ice for Jersey City.

Jersey City, N. J.—The city is about to go into the ice business on its own account. The first step toward municipal ownership, a municipal ice plant, is about to be undertaken. The proposition is that of Commissioner Ferris, of public improvements and streets, and it has met with the unanimous approval of all his colleagues in the Board of Commissioners from Mayor Fagan down. The plan is to have ice cut at the city's high reservoir in winter and store it and distribute it among the officials of the City Hall and other municipal buildings, fire houses, police stations, etc., during the summer. It is believed that in this way the city can save thousands of dollars. Commissioner Ferris will keep a close account of just what it costs the city to cut that ice and store it and deliver it to the city offices.

Municipal Truck Garden.

Marquette, Mich.—The establishment of a municipal truck garden is planned by Poor Commissioner Powers of Escanaba. The city is the owner of twenty acres convenient to town. Commissioner Powers believes that this ground can be farmed with the prisoners in the city jail as the workers, and that the vegetables and other produce it is possible to raise will materially reduce the cost of caring for the municipal poor. It is proposed to have the two city justices, instead of sentencing "drunks" and "bums" to two weeks or thirty days' board at the county jail at the expense of the taxpayers sentence them to the same time, at hard work on the city farm. The project will be given a trial next summer.

Anti-Crowding Law Enforced.

Tacoma, Wash.—Following many complaints that the anti-crowding ordinance is not being enforced the council instructed Commissioner of Public Safety Mills to put a street car inspector at work and to prosecute if any violations of the ordinance are found. Mr. Mills said he had withdrawn the former inspector on the belief that the Supreme Court had held that municipalities have no jurisdiction over the street car companies. The anti-crowding ordinance provides that street cars will not be loaded with more people than there are seats for, plus 50 per cent. City Attorney T. L. Stiles ruled for the benefit of the council that the council does have jurisdiction and that it can enforce the anti-crowding ordinance.

City Property Gives No Revenue.

Pittsburgh, Pa.—The superintendent of the Bureau of City Property of Pittsburgh has discovered that the city owns nearly 8,000 pieces of property from which practically no revenue is derived. While much of the land is in unopened streets and alleys and is occupied for storage purposes, there nevertheless is some improved with buildings which are occupied by "tenants" who pay no rent. In the abandoned "back channel" of the Allegheny river which has been filled in between what was formerly Wainwright's Island and the mainland, there is a strip more than 100 feet wide and several blocks long, which is said to be worth \$250,000. This is used by railroads and manufacturing firms for yards, storage space and assembling grounds and for years they have had its use gratis. Pittsburgh Council has called for an investigation of the property with a view of deriving a revenue therefrom.

New York to Have Gaynor Park.

New York, N. Y.—The title to the East River Park in Astoria has passed to the City of New York. As the park was acquired through the efforts of Mayor Gaynor and the additional support of Borough Presidents McAneny and Connolly it will be named Gaynor Park.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Limitation of Indebtedness—Cash Assets.

Forsyth et al. v. City of Seattle.—A city which has cash and outstanding taxes due, sufficient to reduce its liability below the limit of indebtedness fixed by the Constitution, has not exceeded the debt limit, although its unpaid obligations are in excess of that limit.—Supreme Court of Washington, 132 P. R. 224.

Property Benefited—Nature of Use.

Great Northern Ry. Co. et al. v. City of Seattle.—That much of objectors' property assessed for the improvement of a city street was devoted to railroad uses, and would probably so continue, did not preclude a finding that it would be benefited by the improvement, and was therefore subject to assessment.—Supreme Court of Washington, 132 P. R. 234.

Water Companies—Franchise—Duration.

Des Moines Water Co. v. City of Des Moines et al.—A grant to a water company by a city ordinance of a franchise to operate waterworks for a definitely fixed term, accepted and acted on by the company, terminates at the end of that term by force of the terms of the instrument of grant, and cannot be enlarged by implication.—United States Court of Appeals, 206 F. R. 657.

Street Opening—Adjacent Land.

Philadelphia, B. & W. R. Co. v. Mayor and City Council of Baltimore.—Acts 1910, authorizing the city of Baltimore to open, construct, and establish a certain highway and to acquire "for said purposes" landed or other property in the bed of the highway "and adjacent thereto," authorizes the acquisition of land merely adjacent to the highway, as an incident to the establishment of the highway.—Court of Appeals of Maryland, 88 A. R. 263.

Condemnation Proceedings—Availability and Adaptability.

In re Bensel et al., Board of Water Supply; City of New York v. Sage.—Where land sought to be condemned for a reservoir site to afford a water supply for New York City was particularly adaptable and available therefor, and had been so recognized for many years, there being evidence that the site would inevitably at some time be appropriated, if not by New York, by some other city or group of cities, to furnish a water supply, it was not error to allow a separate award in addition to the value of the land for availability and adaptability.—United States Circuit Court of Appeals, 206 F. R., 369.

Competitive Bidding—Patented Materials.

McEwon et al. v. City of Cœur D'Alene et al.—Rev. Codes, as amended by Laws of 1911, vests power in the city council to determine the character and kind of pavement and the material to be used, and under such authority the council may adopt bitulithic pavement as a suitable pavement for the improvement described in Ordinances Nos. 344 and 361. Bitulithic pavement is only a part of the cost of the entire improvement. The principle of competition is retained by the agreement filed by the company, and the cost of the patented article is made the same to every bidder, and the complete cost of the improvement will not only be the cost that is paid to the patentee, but will necessarily include additional cost and expenses, etc., with reference to which there can be the freest competition; and every bidder may compete as a bidder as to the aggregate cost of the improvement.—Supreme Court of Idaho, 132 P. R. 308.

Contracts—Performance.

Mallory v. City of Olymnia et al.—Where a contractor with a city knowingly, willfully, and persistently violated his contract, and refused to follow the plan given him by the city engineer, as required by the contract, the city, through its proper officials, at all times strenuously objected to the methods employed, and repeatedly called attention to the fact that he was using an insufficient plan,

and the city engineer on numerous occasions objected to the use of improper materials and methods, and, in ordering changes, informed the contractor that, unless he followed the plans and specifications given him, his work would not be accepted, the rule that, where it is the intention of the contract that work shall be inspected as it progresses, and unsatisfactory material, labor, and defects rejected at once, and the person or municipality having the work done has a representative on the ground to see that the contract is complied with defects which are observed are waived, in the absence of fraud on the part of the contractor, did not apply, if such rule is to be recognized at all, since the acts of the contractor amounted to fraud and there was no element of estoppel.—Supreme Court of Washington, 134 P. R. 915.

Bridge Construction—Warranty.

City of New York v. Pennsylvania Steel Co.—Plaintiff contracted to furnish the steel work for a cantilever bridge across the East River in New York City at specified prices on poundage of steel furnished. The city furnished the plans and stress sheets for the bridge with the loads originally contemplated; also a loading key, by which the stresses on each truss by reason of the live loads could be computed per linear foot; the contract requiring that plaintiff should build, construct, finish, and complete the work according to the plans and specifications, numbered, etc., and in accordance with such further details and instructions as the engineer might from time to time furnish, approve, or issue to insure the thorough completion of the work in the most efficient manner. The specifications required that the steel work should be so apportioned as to carry, in addition to its own weight, certain specified loads of live weight. The city subsequently desiring to add two elevated railway tracks, a supplemental contract was entered into, by which plaintiff agreed to furnish the additional steel at the prices provided in the original contract. Held that, plaintiff having furnished the steel and constructed the bridge in strict conformity to the specifications, there was no guaranty on its part that the trusses would not be overstrained if subjected to the live loads provided for in the specifications, and it was therefore no defense to the city's liability for the balance of the price that such would be the fact.—United States Circuit Court of Appeals, 206 F. R., 454.

Sewer Construction—Extra Work.

McGovern v. City of Salem.—A contract for the construction of a sewer under water provided that if, at any time before final payment, any part of the work in the opinion of the engineer shall require repairing, the repairs are to be done by the contractor on notice from the engineer, or, the contractor failing, by the board of sewerage commissioners at the contractor's expense. Held, that such provision referred to repairs to be made on work originally imperfectly done, and needed to bring the work to the standard required by the contract, and not to repairs on work once properly done and accepted by the board, and needed to remedy defects from causes having no relation to any inherent deterioration in the work itself, or to any act of the contractor or his agents or servants.

A contract for a trunk sewer under water provided that no claim should be allowed for extra work unless the same was ordered in writing by the engineer and signed by the board of sewerage commissioners, nor unless the claim, when so ordered, was presented to the board before the 5th day of the month following that during which the specific order was complied with. A leak having occurred before the final construction of the sewer by the displacement of the pipe caused by the anchor of a ship, plaintiff declined to repair it under his contract, when the city engineer stated it was "up to the city," and the city would pay for the repairs. He directed plaintiff to make them, and "the city will pay for it." The board furnished the new pipes to make the repairs and knew of the claim, and plaintiff, relying on such understanding, did the work. Held to warrant a conclusion that the provision of the contract with reference to ordering the extra work was waived.—Supreme Judicial Court of Massachusetts, 101 N. E. R. 974.

NEWS OF THE SOCIETIES

Calendar of Meetings.

October 22-24.

PENNSYLVANIA WATER WORKS ASSOCIATION.—Annual Convention, Philadelphia, Pa. M. C. Hawley, chairman Executive Committee, 504 Park Building, Pittsburgh, Pa.

October 22-23.

SOUTHERN APPALACHIAN GOOD ROADS ASSOCIATION.—Fifth annual convention, Hotel Langren, Ashville, N. C.—H. B. Varner, Secretary, Lexington, N. C.

November 20-22.

ALABAMA GOOD ROADS ASSOCIATION.—Annual meeting, Mobile, Ala. J. A. Rountree, Secretary.

November 10-15.

UNITED STATES GOOD ROADS ASSOCIATION.—Meeting St. Louis, Mo. John H. Bankhead, president; J. A. Rountree, secretary, 1021 Brown-Marx Building, Birmingham, Ala.

December 9-12.

AMERICAN ROAD BUILDERS' ASSOCIATION.—Annual Convention, First Regiment Armory, Philadelphia, Pa. E. L. Powers, Secretary, 150 Nassau street, New York City.

November 6-7.

GREAT LAKES INTERNATIONAL PURE WATER ASSOCIATION.—Meeting, Toronto, Canada. Paul Hansen, Secretary, Urbana, Ill.

League of Washington Municipalities.

The fourth annual convention will be held at Spokane, November 19-22, headquarters Cour d'Alene Hotel, meetings city council chambers. The membership of the league includes present and past elective and appointive officials of any municipal corporation in the state. Its purpose is to bring cities and towns into closer relationship for the purpose of considering matters of personal concern, promoting the various municipal and public interests, and encouraging uniformity of legislation affecting all cities and towns. The program of the meeting follows:

Wednesday.

10 A. M.—Call to Order by the President; Welcome to Spokane, Mayor M. J. Hindley, Spokane; Response, President Howard A. Hanson, Seattle; Report of Secretary-Treasurer, Sam R. Sumner, Wenatchee; Bureau of Municipal Research, Dr. Herman A. Brauer; Question Box; Exhibits, W. L. Hoffeditz, district engineer, Seattle; Appointment of Committees on Credentials and Auditing.

1.30 P. M.—Reports by Standing Committees; Legislative Committee, Judge Charles E. Claypool, Olympia; Finance, W. H. L. Ford, City Treasurer, Everett; General Revision, D. C. Coates, Commissioner Public Safety, Spokane; Local Improvements, Sam R. Sumner, Wenatchee; Home Rule, Geo. F. Cotterill, Mayor of Seattle; Elections, D. F. North, City Attorney, Bellingham; Eminent Domain, James E. Bradford, Corporation Counsel, Seattle; Fourth Class Cities, Senator A. H. McGuire, City Attorney, Waterville.

8 P. M.—Address by Rev. M. A. Matthews, D. D., subject, Modern Standards of Public Service.

Thursday.

9.30 A. M.—Section Conferences, 9.30 to 11 a. m.; (a) Mayors, Councilmen and Commissioners; (b) City Attorneys; (c) Engineers and Street Superintendents; (d) Treasurers, Comptrol-

lers and Clerks; (e) Health Officers; (f) Police and Fire Departments.

11 A. M.—Public Health, Dr. J. E. Crichton, Commissioner of Health, Seattle.

1.30 P. M.—Sewage Disposal in Third and Fourth Class Cities, Prof. McCaustland, University of Washington; Sanitary Control of Public Streams, Dr. Eugene R. Kelley, State Health Officer, Seattle; Street Improvements in Smaller Communities, F. C. Powell, City Engineer, Wenatchee; Water Supply in Third and Fourth Class Cities, Morton McCartney, City Engineer, Spokane.

8 P. M.—Address by Hon. Stephen Chadwick, State Supreme Court, subject, Municipal Problems as Viewed by the Bench.

Friday.

9.30 A. M.—Section Conferences 9.30 to 11 a. m.; (a) Mayors, Councilmen and Commissioners; (b) City Attorneys; (c) Engineers and Street Superintendents; (d) Treasurers, Comptrollers and Clerks; (e) Health Officers; (f) Police and Fire Departments.

11 A. M.—Milk Supply, L. W. Hanson, State Dairy Instructor, Seattle; Municipal Markets, Dr. Herman A. Brauer; Honest Weights and Measures, A. W. Rinehart, State Deputy Superintendent, Olympia.

1.30 P. M.—State Regulation of Local Utilities, M. H. Godman, Chairman Public Service Commission; Municipal Ownership of Light and Power Plants, J. D. Ross, Superintendent Lighting Dept., Seattle; Street Car Franchises, Grade Separation, H. M. Stephens, Corporation Counsel, Spokane; Underground Construction, Indeterminate Permits, E. D. O'Brien, Asst' Supt. Public Utilities, Seattle; The Right to Limit Excessive Loads on City Pavements, Dan F. North, Corporation Counsel, Bellingham; Local Improvement Work by Day Labor, D. C. Coates, Commissioner Public Safety, Spokane.

8 P. M.—Commission and City Manager Forms of Municipal Government; The Spokane Plan, Mayor W. J. Hindley; The Walla Walla Plan, Mayor A. J. Gillis; The Tacoma Plan, Mayor W. W. Seymour; The North Yakima Plan, Mayor A. J. Splawn; Civil Service Under Commission Form of Government, C. M. Fassett, Commissioner Public Utilities, Spokane.

Saturday.

9.30 A. M.—Police Problems, Austin E. Griffiths, Seattle, Chairman; (a) Welfare Bureau; (b) Separate Trials for Women Delinquents; (c) Delinquency Courts for Children; (d) Municipal Farms; (e) Selecting Police Chiefs for Small Towns from Trained Members of the Force in Larger Cities.

American Electric Railway Association.

The annual convention was held at the Million Dollar Pier, Atlantic City, October 13-17. The exhibit in connection with the convention is said to have been the most remarkable one ever

shown in the resort and it attracted hundreds of visitors. The usual wooden partitions were superseded by a continuation of hedge growing in boxes. The attractions at night consisted of numerous opaque glass columns lighted from within by electricity. Among the individual exhibits of interest to municipal authorities were those of car fenders. The Herr Patent Fender Company showed a fender operating with a lever. The motorman operates the lever with the same motion he uses in shutting off the controller and drops the fender. The Trolley Supply Company, Canton, O., showed a fender operating on the contact principle, so sensitive that the slightest pressure on the cross bar drops the fender in position. Among the cars that attracted special attention was a near-side one-man car. This divided the attention with an autobus of one-man type which seats forty people.

Among the papers of general municipal interest was one by George H. Harris, who spoke of the financial difficulties confronting street railways. He proposed a division of territory lying outside centers of population into zones and the fixing of a rate of two cents per mile within those zones. The usual rate of fare would be charged in the thickly populated districts.

C. Nesbit Duffy, vice-president of the Milwaukee Electric Railway and Light Company, discussed at some length the failure of the city franchise now in operation in Cleveland, O.

Charles S. Sergeant, vice-president Boston Elevated Railway Company, submitted the proposal that municipalities should construct the subways or viaducts in cities where traffic congestion was such as to make them necessary.

The joint committee on poles, which includes members from the American Institute of Electrical Engineers, the National Electric Light Association and the American Telephone and Telegraph Company, presented a report which advocated the joint use by all the principal wire users of the country of one set of poles in cities and villages.

Assistant Surgeon-General Rucker of the Public Health Service spoke of the spread of disease by cars and trains.

William D. Kerr, New York, who joined in drafting a proposed uniform public utilities law, vigorously supported the measure, which provides protection demanded by the public and recognizes the rate-making power. This measure is to be submitted to all State Legislatures and utilities commissions.

The following officers were elected: President, C. M. Black, of San Francisco; vice-presidents, C. Loomis Allen, of Newport News; Charles L. Henry, of Cincinnati; John A. Beeler, of Denver; L. H. Storrs, of New Haven; C. A. Burritt, of New York, secretary and treasurer. San Francisco was selected as the place of meeting in 1915.

National Fire Prevention Convention.

About three hundred delegates and several thousand spectators attended the convention held under the auspices of the fire prevention commission of the Department of Public Safety, Philadelphia, during the week beginning October 13. Director of Public Safety Porter was the first to address the convention, which was presided over by Powell Evans, chief of the local commission. Zones of danger were discussed by Edwin Clark, chief of the bureau of building inspection, Philadelphia, and Charles H. Cole, fire commissioner of Boston.

The general proposals for preventive treatment in these papers dealt with the installation of automatic sprinklers, the limiting of building heights, the enforcement of elevator-shaft and window and door guards of fireproof construction, the codifying of building laws and the enforcement of ordinances against accumulations of waste. It was suggested that the health laws of most cities can be made to help in the fire-prevention campaign if other ordinances fail.

G. M. Robinson, of San Francisco, declared to the convention that the great fire in the Western metropolis could have been prevented if proper fireproofing measures had been in force there at the time of the great earthquake.

Many discussions on the relative values of the fire drill, the fire-escape, the fireproof interior construction, the automatic fire sprinkler, the bisecting fire wall, the several sizes of available fire hose and the old-fashioned bucket that did duty along the fire line in an earlier day, consumed most of the second day. Like experts in other lines the men who came to Philadelphia to discuss practical remedies for the great fire waste menace found points upon which they disagreed.

While the fire-escape that adorns factory buildings everywhere was termed a cleverly contrived gridiron for the roasting of human beings trapped by fire and the automatic sprinkler suggested as a preventive treatment that would make it unnecessary, the automatic sprinkler in turn came in for a measure of criticism and the bisecting fire walls was offered as an appliance carrying with its installation a reasonable assurance of safety. The fire wall, too, had some flaws, in the minds of the experts, and there seemed to be generally an agreement that the architect and builder could find the middle ground that would bring about the real "fireproof" dwelling, hotel or factory.

W. R. Barton, of St. Louis, told how department stores in his city maintain capable fire-fighting forces among their employes by having them drilled sixty days under the paid firemen. G. Albert Gasser, of Newark, suggested that the private force could be a power for good, but should recognize the ability of the trained men and should see to it first of all that the firemen are called. The recent factory fire that blotted out 28 lives in Newark, Mr. Gasser said,

would have been extinguished without danger to any of the workers if it had not been for "the knowledge one man had of fire-fighting."

H. F. J. Porter, of New York, called the fire drill a wasteful idea because it consumes the time and energy of the workers, cuts down their wages when they work by the piece, and is costly to employers. Better buildings, he suggested, are the only reasonable solution for the problem of protection, and he favored the protection of these better buildings by the use of approved safety devices.

Clayton W. Pike, chief of the Electrical Bureau of this city, read a paper in which he said there are 83,000 poles and 19,000 miles of wire used in the system that guards life and property in Philadelphia and declared that there never could be adequate fire-fighting without the patrol-boxes, alarm-boxes, and private telephone systems along the high-pressure routes. He recommended 150 boxes to the square mile in congested districts and said that each should have a red light at night.

The following resolution was adopted: "It is the sense of this convention that all building construction and reconstruction should be under governmental control, state or local, to the end that the greatest safety for the greatest number for the present and future should be assured. A state building code with requirements which local governing bodies may raise, but not lower, by local enactment, said requirements to be enforced by proper governmental machinery over all of each and every state, and

"That the classification of building construction is entirely one of relative ability to resist attack by fire, and therefore, in all building codes, the term of fireproof should be replaced by fire resistive, and that ordinary frame construction should be classified as combustible, and that this association be requested to recommend approved standards of fire resistive construction which may be used by states and municipalities in their respective building codes.

Several spectacular exhibitions of fire streams were given by the local department.

League of Minnesota Municipalities.

The first annual convention of the League opened at the Saint Paul, October 17, with an address of welcome by Mayor Keller. J. E. Jenks, city attorney of St. Cloud, president of the organization, responded. Among the papers presented and topics discussed were the following: Governor Eberhart stated that he never would sign any measure that would prevent any city or municipality in the state from owning its own public utilities. President George E. Vincent, University of Minnesota, spoke on "Heat and Light." Charles A. Russell, Brainerd, delivered an address on the "Advantages of a Policy of State Control of Public Utilities for Minnesota." W. O. Currie, secretary of the Home Rule League,

discussed Mr. Russell's paper. Halford Erickson, of the Wisconsin railroad commission, spoke on "State vs. Local Control of Public Utilities." T. S. Richmond, Madison, Wis., spoke on the "Wisconsin Public Utilities Law—Its Operation and Results—the Peoples Point of View." G. A. Gesell, University of Minnesota, made an address on the functions of the municipal reference bureau. Thomas W. Mitchell, University of Minnesota, spoke on uniform municipal accounting systems.

League of Kansas Municipalities.

The fifth annual meeting was held in Kansas City, Kan., October 8-10. The League now numbers as members eighty-two cities and is the third largest organization of its kind in the United States. Mayor J. Dunkelberger, Newton, president of the League, called the convention to order. Mayor C. W. Green made the address of welcome. Among the papers and topics discussed were the following: Prof. Richard R. Price, University of Minnesota, said that public spirited citizens of large influence and ability have considered city affairs beneath their notice. The result being that municipal problems were often settled by men of small attainments and limited vision. L. A. Halbert, superintendent of the Board of Public Welfare, Kansas City, Mo., told of the work of that branch of the city government. J. O. Stroutsman, Kansas City, Mo., gave an illustrated lecture on the relation of housing conditions in cities to the public welfare. R. E. McDonnell, consulting engineer, spoke of the permanent water supplies of the cities of Kansas, urged municipal ownership of public utilities, especially water and light plants. Mayor Edgar Fessenden, Emporia, spoke on the collection and disposal of garbage. Henderson S. Martin, chairman of the State Public Utilities Commission, addressed the meeting on the municipal ownership of public utilities. Prof. Erasmus Haworth, University of Kansas, read a paper on the natural gas situation. City Clerk Hopkins, Ottawa, presented a paper setting forth Ottawa's municipal achievements and outlining questions it has to solve. N. F. Sanes, Chanute, spoke on the municipal gas system of his city.

Municipal electric light plants were discussed by H. E. Downs, city clerk of Baldwin, representing the smaller cities, and J. E. Cable, Commissioner of Water and Light of Kansas City, Kan., representing the larger municipalities. Ex-Mayor Rose, Kansas City, spoke on Home Rule.

The following officers were elected: Mayor C. W. Green, Kansas City, president; Mayor Charles Kerr, Independence, vice-president; C. H. Talbot, University of Kansas, secretary-treasurer.

Texas Mayor's Association

Invitations have been issued by Mayor A. P. Wooldridge, of Austin Tex., to the mayors and city attorneys of every city in Texas having a population of

5,000 and over to meet at Austin on November 4, 1913, for the purpose of forming the Texas association of mayors and city attorneys. This meeting is called in connection with the work of the University school of government, of which Dr. Herman J. James is the head.

Municipal Engineers of the City of New York.

At the regular meeting, Engineering Societies Building, 29 W. 39th street, Manhattan, a paper on "The Work of the Department of Street Cleaning" was presented by Fred. L. Stearns, superintendent of final disposition, Department of Street Cleaning, New York City. The paper was illustrated by lantern slides.

On October 17, members of the society joined in an excursion to the Bethlehem steel plant, Bethlehem, Pa.

George A. Taber is secretary of the society.

New York State Association of Chiefs of Police.

More than fifty chiefs of police attended the fourteenth annual convention, Rochester, October 6. Mayor Hiram H. Edgerton made the address of welcome. The following addresses were made: "Law Enforcement, Its Relation to Crime," by Chief Quigley of Rochester. Speaking of the opportunities afforded criminals released from prison for leading honorable lives, he said they will be given every possible chance to make good in a new life. They were helped and encouraged by the police. George Schoeffel, formerly chief of police of the Erie railroad system, made the same point. The other speakers were: James Donovan, of Port Chester; C. J. McCabe, of Poughkeepsie; Superintendent Michael Regan, of Buffalo; O. A. Rothrock, of Albany; Daniel Wolff, of Yonkers; G. R. Smith, of Gloversville; Deputy Commissioner Dougherty, of New York; Mayor Richard Sylvester, of Washington, D. C. Roland Cole, of the Yawman & Erbe Company, gave a lecture on the system of identifying criminals and use of the card index system.

The following officers were elected: Michael Regan, Buffalo, president; James J. Lane, Hudson, vice-president; James L. Hyatt, Albany, secretary-treasurer.

Massachusetts Association of Boards of Health.

About sixty members attended the regular meeting, New Bedford, Oct. 9. They were welcomed at the Municipal Building by Mayor Ashley. The visitors were then taken about the city in automobiles to inspect the various improvements and processes of sanitary interest. The first place visited was the garbage plant, where Charles K. Wheelwright met them and explained the workings of his plant. The process of treating the garbage with hot water and steam was explained and the mayor gave an account of what it had cost to get rid of garbage during the past twenty years.

From the garbage plant the party

journeyed to the shores of Clarks Cove, where former City Engineer William F. Williams undertook to explain the workings of the new intercepting sewer that the city is installing to relieve the pollution of the surrounding waters. The pumping station was inspected, and Mr. Williams, who planned the system previous to his appointment as chief engineer of the harbor and land commissioners, took the party to Cove street, where a part of the sewer itself is under construction.

At the business session Prof. W. T. Sedgewich was the principal speaker. He spoke of the new Massachusetts school for health officers as being one of the achievements of recent years. In founding this school for health officers, the commonwealth was showing leadership.

American Road Builders' Association.

Plans for the coming convention of the American Road Builders' Association at Philadelphia, Pa., December 9, 10, 11 and 12, which will be the tenth annual gathering of that organization, are being rapidly matured by the convention committee having the matter in charge.

Although the entire program of the technical sessions has not been definitely decided upon, a general scheme for covering the various subjects to be considered has been prepared and many assignments of papers have been made. As noted in the issue of Oct. 4, the matters to be discussed at the convention will be taken up under three general heads—organization, construction and maintenance—and these will be further subdivided so as to cover every phase of road and street work. Although not definitely decided, it is probable that the set papers and discussions will occupy at least five sessions.

A departure from the usual method of conducting the congress will be made this year by the holding of a popular session on Thursday evening. At this meeting addresses will be made by prominent public men who have evinced an interest in highway betterment, and it is planned to have other features which will appeal to laymen as well as to those actually engaged in road work. Governor Lister of Washington has signified his intention of being at the congress and will probably be one of those who will address the meeting on Thursday evening.

On Thursday afternoon the delegates will be taken on an inspection trip through the city. This will afford an excellent opportunity to view street improvements and other work of a like nature.

The local committee is making extensive plans for the entertainment of the delegates and the social features of the convention are being carefully arranged. One of these will be a theater party for the A. R. B. A. members, the exhibitors and official delegates on Wednesday evening. Special provisions are also being made for the en-

tertainment of the ladies attending the congress. An automobile ride around the city has been planned for them on Wednesday afternoon, and other entertainments will be provided.

The officers of the association will be quartered at the Bellevue-Stratford Hotel. The sessions of the convention and congress and the exhibition of machinery, materials and methods as well as place of registration of delegates will be at the First Regiment Armory.

PERSONALS

Beirne, Henry T., Pensacola, Fla., has been elected general superintendent of sewers, succeeding George Rommell.

Carlisle, John N., Albany, N. Y., commissioner of highways, has made the following appointments of division engineers:

Division No. 1—Engineer, Bertram F. Wait, New York, new appointee; headquarters Poughkeepsie.

Division No. 2—Engineer, Harvey O. Schermerhorn, Troy, new appointee; headquarters, Albany.

Division No. 3—Engineer, Theron M. Ripley, Syracuse; new appointee; headquarters, Watertown.

Division No. 4—Engineer, James H. Sturdevant, reappointed; headquarters, Utica.

Division No. 5—Engineer, Howard D. Smith, Syracuse, new appointee; headquarters, Binghamton.

Division No. 6—Engineer, Charles J. McDonough, Buffalo, new appointee; headquarters, Syracuse.

Division No. 7—Engineer, Perry Filkin, reappointed; headquarters, Rochester.

Division No. 8—Engineer, Frederick S. Strong, reappointed; headquarters, Hornell.

Division No. 9—Engineer, William E. Acheson, Troy, new appointee; headquarters, Buffalo.

Fine, Horace E., Trenton, N. J., has been appointed chief counsel for New Jersey of the Lincoln Highway Association.

Griswold, E. A., Whitewater, Wis., has been appointed superintendent of water-works, succeeding Fred Bosch.

Hendicks Calvin W., chief engineer of the Sewer Commission, has been chosen to represent Baltimore at the Fifth National Conservation Congress.

Lands, E. E., Houston, Tex., has been appointed city engineer.

O'Neal, R. L., Huntsville, Ala., has been elected president of the Commission and mayor at the first regular meeting of the city commissioners. Other city officials elected are: City clerk, Paul Monroe; street superintendent, Claude Phillips; chief of police, A. D. Kirby; fire chief, O. K. Stegall; city attorney, David A. Grayson.

Smith, Edward St. Clair, Gooding, Idaho, has been appointed state highway engineer of Idaho.

Weston, Robert Spurr, Boston, Mass., has been appointed assistant professor of Public Health Engineering, Massachusetts Institute of Technology, succeeding Dr. Earle B. Phelps.

NEW APPLIANCES

ASPHALT MIXER.

Equitable Company Places on Market a Three-Unit Plant.

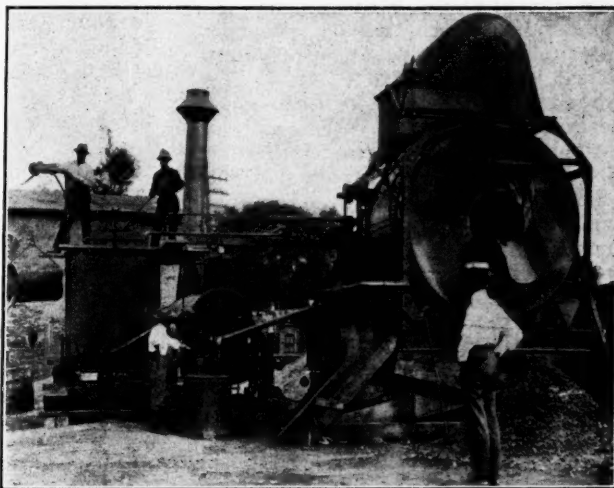
The Equitable Asphalt Maintenance Company, Kansas City, Mo., has placed on the market a modification of their Equitable asphalt mixer. The plant consists of three units—a 900-gallon asphalt kettle, a portable 40-horsepower boiler and a heating and mixing drum which handles batches of 6,000 pounds each. By mounting the boiler independently little or nothing is lost in portability of the plant and the advantage of ample boiler capacity to meet all contingencies due to unusual conditions and winter work is well known to practical men.

In general the style of construction is similar to that of the types of plant previously put on the market by the Equitable Company. The drum used for drying, mixing and in some cases for melting is eight feet in diameter and seven feet long. The engine which operates the drum is a 9 by 9-inch vertical center crank type, enclosed to keep out the dust. The drum and engine are carried on a heavy frame formed of 10-inch steel channels suitably braced. The axles are of steel shafting reinforced with channels. The wheels are steel, front 12 by 40 inches, rear 18 by 72 inches.

The drum is supported on four heavy cast chilled trunnion wheels with steel shafts turning in babbitted bearings and is rotated by gearing directly connected with a vertical steam engine. The drum is made of heavy steel plates with flanged steel heads. Inside are steel mixing blades. The elevator by which sand, stone or other materials are fed into the drum is provided with a suitable boot and it is enclosed. The buckets deliver into a hopper with a gate through which the batch is let into the drum at the proper time. The material after heating is discharged by means of a chute into wagons, ready for hauling to the street. Oil is used for heating. A 300-gallon oil storage tank mounted on the frame with drum and engine is part of the equipment. The furnace is of special patented design. It has cast iron doors and a cast iron elbow, is lined with fire brick and has one large Equitable steam spraying oil burner. Hot air without flame is passed into the drum.

The melting tank is mounted on iron

wheels with steel axles. The furnace is brick lined. Barrels are hoisted to the working platforms about the tank by a light crane. A measuring and charging bucket for handling the asphalt to the drum is part of the equipment. The boiler furnished with the plant is of the locomotive fire box type. The manufacturers have carefully provided the plant with all the minor equipment necessary for moving and operating it. The rated capacity is 800 square yards of 2-inch asphaltic mixture per day.



EQUITABLE ASPHALT MIXING PLANT.

EMERGENCY TRUCK.

White Company Build Vehicle Which is Ambulance, Hospital, Excavator, and Fire and Gas Fighter.

The White Company, Cleveland, O., has built and equipped an automobile for use in emergency work to rescue, revive and treat entombed and injured miners. Although built specially for the Bureau of Mines, the design of the vehicle is worth studying with a view to adapting it to municipal rescue work in connection with the police or fire department.



WHITE TRUCK FOR GENERAL EMERGENCY WORK.

Inasmuch as instant access to everything is essential, the truck body has been built with a special place for everything it carries. To this end the entire carrying space except for the crew of trained rescuers consists of compartments of varying size and odd shape, nearly all opening on the outside of the truck by means of snatch hooks.

Under the driver's seat are carried ten Draeger reviving outfits. Six oxygen tanks are carried beneath the body on a specially built subframe and cradle, the tanks lying crosswise of the truck so that they may be pulled out quickly when necessary. On the left side of the chassis frame there is attached an oxygen pump, which is operated by the power of the motor. In back of the driver's seat there are hooks for a five-foot crowbar and tent poles.

Immediately in back of the driver's seat and extending the full height of the truck there is a series of compartments opening on the outside of the truck. These compartments carry a tent, 22 feet of hose, three picks, three shovels, one four-pound sledge and two hand axes. In back of these compartments are two seats, arranged lengthwise, with folding lazy-backs and protected by a brass railing. Beneath the seats there is a series of smaller compartments. Beneath the rear steps there is another compartment with doors at each side and in the end. There are also shallow drawers to take saws, hose couplings, reducers, spanners and 200 feet of half-inch rope.

The central compartments along the sides of the body contain one life line reel, a telephone system, part of which is carried into the mine, and an assortment of compasses, braces, bits, chisels, hacksaws, blades and snatch blocks. Suspended on the outside of the body on specially designed hooks and clamps are stretchers, fire extinguishers, axes,

lanterns, etc. Two special boxes are built on the running boards to accommodate a large number of mine lanterns and small boxes are built on the rear wall of the forward compartment to carry two first aid boxes and a pump. The truck is equipped with an eight-inch swivel headlight, mounted on the dash, and is fitted with non-skid tires. It is painted battleship gray with black striping.

MOTOR COMBINATION CHEMICAL.

Mounted on 1500-Pound Commercial Chassis—Shaft Drive—Long Stroke Piston.

The Brown Commercial Car Co., Peru, Ind., have placed on the market a combination chemical and hose wagon. The illustration shows the machine which was delivered to the Dover, N. H., fire department.

The Brown chassis except for details, is of the conventional design having a carrying capacity of 1500 pounds. To afford perfect alignment for all parts the unit power plant is employed,—that is the motor, transmission and clutch all securely bolted together, form the unit. The motor is of the latest type, long stroke, cylinders cast en bloc with valves enclosed. The intake manifold is integral with cylinders, greatly assisting in the carburetion as the mixture is heated before entering the combustion chamber. Force feed constant level system of lubrication is used, the circulation being effected by means of two pumps driven by eccentrics on cam shaft. The oil is pumped through tubes to points over the timing gears and the rear main bearings, then drains toward the center and the proper level is maintained. The clutch is of the dry plate type, having a series of plates faced with a composition of woven asbestos, cotton and copper wire. This clutch runs dry, engages easily and is very positive, requiring but little attention. The transmission is of the selective type with three speeds forward and one reverse. All gears are nickel steel and bearings of imported annular type. Both gear shift and brake levers as well as pedals are attached directly on to the power unit giving a chassis which can be greatly distorted without affecting any of the operating mechanism.

Final drive to the rear wheels is through an internal gear type of axle. The principle of this axle is of supplying a solid member to carry the load, and a separate one to transmit the power to the wheels. The carrying member of this axle is of forged steel I-section with wheels running on double row annular bearings. The jack shaft is securely bolted to the rear of this forging and is relieved of all carrying strain by the forged member, leaving it purely for the purpose of propulsion. Torque and driving strain of the rear axle is taken through two large tubes running diagonally from the brake spiders to a cross member placed in the center of the chassis. The forward end of the tubes is carried on a ball, supported by adjustable bronze bearings. Drive from transmission to rear axle is through a one and three-fourths inch tubular propeller, fitted on both ends with dust-proof universal joints. The front axle is drop forged in heavy section with spring seats forged integral. Wheels are supported on double row annular bearings. Springs both front and rear are semi-elliptic, two inches wide and exceedingly long,—the front being forty inches in length and the rear fifty inches. The springs are accurately ground and hand fitted and made of the best grade of steel. All spring eyes have hardened bushing which eliminate the usual clatter of the springs. Wheels are of second growth hickory, twelve spokes to each wheel, spokes of two-inch cross section and in the rear every spoke is bossed and bolted to brake drum.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago. A number of moderate sized municipal orders have recently been placed. Prices are firmer than they have been. Quotations: 4-inch, \$28; 6 to 12-inch, \$26; 16-inch and up, \$25. Birmingham. Conditions have not improved, owing to lack of large municipal orders. Quotations: 4-inch, \$22; 6-inch and up, \$20. San Francisco. While there is considerable business in prospect, no notable inquiries are in the market at present. New York. Inquiries from private buyers is in large volume.

However, no large sales to private consumers are reported. Quotations: 6-inch, carloads, \$23 to \$23.50.

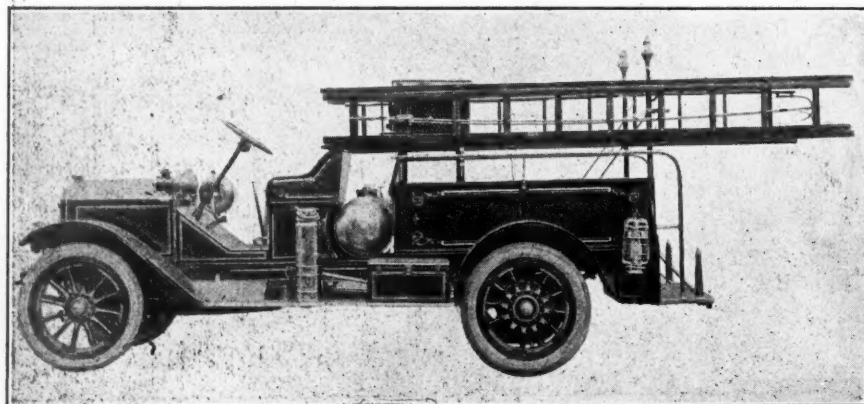
Lead.—Market is lower. Quotations: New York, 4.40c.; St. Louis, 4.20c.

Road Building Material.—Thomas M. Roche, who until recently has been manager of the road department of the American Asphaltum & Rubber Company, has opened an office, 518 Monadnock Bldg., Chicago, Ill. Mr. Roche will handle road building materials and machinery.

Brick Manufacturers' Association.—The Western Paving Brick Manufacturers' Association will shortly occupy new quarters, in the Dwight building, Kansas City. In the new location, ample room has been secured for the holding of meetings, and hereafter all sessions of the association will be held in its own quarters. George W. Thurston is secretary.

Durax.—The Harris Granite Quarries Company, Salisbury, N. C., have published an illustrated pamphlet describing Durax, the pavement laid in accordance with European specifications of small blocks of granite and grouted in place with tar and stone chips. This construction places the pavement somewhere between ordinary granite blocks and bituminous macadam as regards durability on one side and the more pleasing qualities on the other, to obtain which durability must be more or less sacrificed. Attention is called in the pamphlet to the high crushing strength of the Harris granites. The construction of the first Durax pavement to be laid in the United States was described in the Municipal Journal June 19.

Paving Brick.—The demand for paving brick has so crowded the capacity of the Foster plants in Western Pennsylvania and Southern New York, that C. E. Foster, president of the Foster Paving Brick Co. has closed a deal whereby he takes over the Youngville (Pa.) Brick & Tile Company and the Binghamton (N. Y.) Paving Brick Company. The two plants will be operated under the Foster management, with capable local superintendents. The combined production of the plants now controlled by this company is upwards of 100,000 first quality block per day and plans have been made to increase the capacity of all of the units of this fast-growing enterprise. Three additional kilns are to be built at Bradford, Pa., two additional kilns at Youngville and additional machinery at Binghamton. When these improvements are all completed, it is said that this company will have the largest output east of the Ohio-Pennsylvania line. At a recent meeting of the Eastern Paving Brick Manufacturers' Association, Mr. Foster was elected to its presidency, vice C. P. Mayer of Bridgeville.



NEW COMBINATION CHEMICAL AND HOSE AUTO.

ADVANCE CONTRACT NEWS

ADVANCED INFORMATION BIDS ASKED FOR

CONTRACTS AWARDED ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Ia.	Sioux City	10 a.m., Oct. 25	22,500 sq. ft. sidewalks	P. J. Wells, City Clerk.
Minn.	Litchfield	2 p.m., Oct. 25	Grading	A. O. Palmquist, Co. Aud.
Minn.	Minneapolis	11 a.m., Oct. 26	Grading country road	A. P. Erickson, Co. Aud.
O.	Matamora	Noon, Oct. 27	Grading, filling, brick paving	R. O. Hanlon, Vil. Clk.
N. Y.	Yorkville	8 p.m., Oct. 27	Sandstone pavements	W. Armstrong, Clk. Bd. Trus.
Mo.	Kansas City	Oct. 27	Grading and draining	L. M. Gilday, Co. Clk.
N. J.	Smith's Landing	11 a.m., Oct. 27	36,000 gallons Glutrin	G. Jeffers, Ch. Road Comm.
Ky.	Louisville	Oct. 28	Parkway	Bd. Pk. Comrs.
Ia.	Slater	7 p.m., Oct. 28	Graveling and grading	A. Maland, City Clk.
Fla.	St. Andrews	noon, Oct. 28	Three miles shell road and three bridges	J. R. Thomson, City Clk.
N. Y.	White Plains	8 p.m., Oct. 28	Sidewalks, curbs and gutters	G. K. Cox, Clk. Vil. Bd. Trust.
Ia.	Des Moines	9 a.m., Oct. 29	Resurfacing with Warren bitulithic or Westrumite	H. Susong, City Clk.
Ind.	Indianapolis	10 a.m., Oct. 30	Grading, draining and paving	C. P. Beard, Co. Aud.
N. J.	Jersey City	4 p.m., Oct. 30	Wood block on concrete base; granite block; street signs	M. I. Fagen, City Clk.
N. J.	Newark	Oct. 30	Paving with wood block	M. R. Sherrerd, Chief Engr.
Ind.	Evansville	10 a.m., Oct. 30	Rock road	C. P. Beard, Co. Aud.
O.	Columbus	noon, Oct. 31	Improving and macadamizing	J. Scott, Clk. of Co. Comr.
Wash.	Pasco	Nov. 1	Highway construction	C. C. Robinson, Co. Clk.
Minn.	Duluth	Nov. 1	State highway	O. Halden, Co. Aud.
Fla.	Pensacola	2 p.m., Nov. 3	Sidewalks	A. Greenhut, Mayor.
Ind.	Green Castle	2 p.m., Nov. 3	6,615.8 ft. macadam	C. H. Airhart, Co. Aud.
Ind.	Jackson	2 p.m., Nov. 3	Macadam	J. Cronin, Jr., Co. Aud.
Wash.	Prosser	Nov. 3	Grading and graveling five miles	C. D. Walter, Co. Engr.
N. J.	Elizabeth	8.30 p.m., Nov. 3	Granite block on concrete foundation	W. P. Neafsey, Str. Comr.
Ind.	Vevay	1 p.m., Nov. 3	Road in Pleasant Township	J. W. Smith, Co. Aud.
Ia.	Lake Arthur	Nov. 4	83,000 sq. ft. concrete sidewalk, combined curb & gutter	Town Clerk.
Ind.	Vincennes	2 p.m., Nov. 4	Gravel	J. T. Scott, Co. Aud.
Ind.	Shelbyville	7.30 p.m., Nov. 4	Curbs and sidewalks	L. E. Webb, City Clk.
Ind.	Marion	2 p.m., Nov. 4	Four roads	E. H. Kimball, Co. Aud.
Ind.	Rockville	1.30 p.m., Nov. 5	Gravel	J. E. Elder, Co. Aud.
Ind.	Crown Point	Noon, Nov. 5	Gravel	C. A. Johnson, Co. Aud.
Ind.	Logansport	10 a.m., Nov. 5	Three macadam roads in Jackson Township	J. E. Wallace, Co. Aud.
Ia.	Lafayette	Nov. 5	Fifteen miles cement sidewalks	L. J. Voorhies, City Engr.
Ill.	Pekin	Nov. 5	1,816 sq. yds. brick paving; 650 ft. concrete curb and gutter	J. R. Selbert, City Engr.
Ind.	Marion	10 a.m., Nov. 10	Road repairs	W. T. Patton, Co. Aud.
Ind.	South Bend	Nov. 10	Grading, draining and paving	C. Sedgwick, Co. Aud.
O.	East View	noon, Nov. 10	2½-inch stone slag sidewalks	A. A. Smith, Vil. Clk.

SEWERAGE

Ia.	Sioux City	10 a.m., Oct. 25	Sanitary sewer	P. J. Wells, City Clerk.
Ill.	Birds	6 p.m., Oct. 25	Tile	L. Ford, Vil. Clk.
Pa.	E. McKeesport	1.30 p.m., Oct. 25	Sanitary sewer	E. G. King, Ch. Sew. Com.
Minn.	Henderson	8 p.m., Oct. 25	2,345 ft. sanitary sewer	W. F. Bosel, City Clk.
O.	Bedford	noon, Oct. 26	Sewers	C. C. Lowe, Vil. Clk.
Minn.	Worthington	10 a.m., Oct. 27	Construction and tiling county ditch	G. Swanberg, Co. Aud.
N. Y.	Yorkville	8 p.m., Oct. 27	Sewer, manholes	W. Armstrong, Clk. Bd. Trus.
Wis.	Ripon	4 p.m., Oct. 27	875 ft. of sewer	J. W. Pierce, City Clk.
Pa.	Lima	10 a.m., Oct. 28	Sewers for State House of Employment	O. L. Davis, Co. Compt.
N. J.	Vineland	Oct. 28	Sewerage disposal plant, septic tank, pumping equipment in State Institute for Feeble Minded Women	Dr. M. A. Hollowell, Supt.
N. Y.	Brooklyn	11 a.m., Oct. 29	Sewers	L. H. Pounds, Boro. Pres.
N. Y.	Binghamton	Oct. 29	Sewer	City Clerk.
Pa.	Philadelphia	noon, Oct. 29	Main sewers	M. L. Cooke, Dir. Pub. Wks.
N. J.	Jersey City	4 p.m., Oct. 30	72-in. and 60-in. reinforced concrete sewers; circular brick sewer	M. I. Fagen, City Clk.
Ill.	Chicago	noon, Nov. 6	Intercepting sewers	J. McGillen, Clk. Bd. Trus.
Ind.	Brazil	7.30 p.m., Nov. 7	Sanitary sewers	J. W. Williams, City Clk.
N. J.	Newark	Nov. 18	Sewers	J. S. Gibson, Clk.

WATER SUPPLY

Tex.	Fort Bliss	10 a.m., Oct. 25	Steel trestle and tank	Capt. A. P. Watts, Q. M. Corps.
Fla.	Pensacola	2 p.m., Oct. 27	100 tons 6-in. c-l. water pipe and specials; 12 fire hydrants; 6 gate valves; 2½ tons pig lead; 300 %-in. disc water meters	A. Greenhut, Mayor.
D. C.	Washington	10 a.m., Oct. 28	C-l. pipe for Puget Sound	T. J. Cowie, Paymaster Gen.
Mass.	Boston	Oct. 28	Electric pumping plant for high pressure fire service in pumping station	L. K. Rourke, Comr. Pub. Wks.
O.	Akron	Oct. 29	Pumping station, machinery and equipment	R. M. Pillmore, Dir. P. Serv.
O.	Cleveland	noon, Oct. 29	Wrought steel pipe	W. H. Kirby, Sec. Pub. Serv.
D. C.	Washington	Oct. 30	Water purification plant for Miraflores, Panama	Maj. F. C. Boggs, Gen. Pur. Of.
Kan.	Olathe	Nov. 1	Hydrants, valves and castings, 100,000 gallon tank and centrifugal pump	S. P. Howland, City Clk.
O.	East View	noon, Nov. 10	Six-inch water mains	A. A. Smith, Vil. Clk.

LIGHTING AND POWER

O.	Lowellville	Oct. 25	Extending lighting system	E. Gray, Clk. Bd. Pub. Affairs.
Sask.	Regina	Oct. 25	Power house equipment; 3,000 K.W. steam turbine with condenser; 25-ton hand power crane	E. W. Bull, Supt. Lt. & Pwr. Dept.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
O., Cleveland	.....	Oct. 25	Construction of municipal electric light plant	W. H. Kirby, Sec. Pub. Serv.
N. Y., Manhasset	.....	Oct. 27	Lighting for Roslyn, L. I.	Town Board.
N. J., Jersey City	.....4 p.m., Oct.	30	Gas street lamps and maintenance	M. I. Fagen, City Clk.
D. C., Washington	.....	Nov. 1	Power house for U. S. Radio Station, Jupiter, Fla.	H. R. Stanford, Ch. Bur. Yds. and Docks, Navy Dept.
N. C., Wilson	.....3 p.m., Nov.	4	Water tube boilers, two 500 k.w. units, condensers and switchboard	E. A. Darden, Sec. Bd. P. Wks.
FIRE EQUIPMENT				
N. J., New Brunswick	.....8 p.m., Oct.	27	Two front-drive motor tractors	Fire Committee.
Fla., St. Augustine	.....noon, Oct.	27	American La France triple combination pumping engine, chemical and hose motor car	J. L. Center, Ch. Fire & Police Com.
N. J., Jersey City	.....4 p.m., Oct.	30	200 fire hydrants	M. I. Fagen, City Clk.
BRIDGES				
O., Marysville	.....1 p.m., Oct.	25	Substructures	C. A. Morelock, Co. Aud.
N. J., Elizabeth	.....2.30 p.m., Oct.	27	Extensions	J. L. Bauer, Co. Engr.
Fla., St. Andrews	.....noon, Oct.	28	Three bridges	J. R. Thompson, Clk.
D. C., Washington	.....	Oct. 28	Masonry bridge	Comrs.
O., Akron	.....	Oct. 29	Culvert, superstructure and substructure for bridge	C. L. Bower, Co. Clk.
O., Dayton	.....	Oct. 30	Steel and concrete substructure	W. H. Aszling, Sec. Co. Comrs.
Ind., Indianapolis	.....10 a.m., Oct.	30	Repairs	W. T. Patten, Co. Aud.
O., Elyria	.....1 p.m., Oct.	30	Concrete coping	F. L. Ellenberger, Co. Clk.
Tex., Alvin	.....noon, Oct.	30	Reinforced concrete culverts	J. Hunker, Sec. Co. Comrs.
O., Columbus	.....noon, Oct.	31	Reinforced concrete box culvert	J. Scott, Co. Clk.
O., Xenia	.....11 a.m., Oct.	31	Floor systems	G. W. Kendall, Co. Clk.
Ind., Lawrenceburg	.....noon, Nov.	3	Bridge	W. S. Fagaly, Co. Aud.
Ind., Brookville	.....1 p.m., Nov.	3	Repair of bridge	C. G. Reifel, Co. Aud.
Cal., Santa Barbara	.....10 a.m., Nov.	3	Two concrete girder bridges	C. A. Hunt, Co. Clk.
Pa., Pittsburgh	.....	Nov. 3	Reinforced concrete bridge approaches	C. A. Finley, Act. Dir. D. P. W.
Kans., Wichita	.....Noon, Nov.	3	Concrete bridges	H. M. Barrett, Co. Clk.
S. D., Britton	.....	Nov. 4	Bridges and culverts	C. Mohn, Co. Aud.
O., Dayton	.....10 a.m., Nov.	6	Sewer and concrete culvert	W. H. Aszling, Sec. Co. Comrs.
O., Cincinnati	.....noon, Nov.	7	Repairing bridges	A. Reinhardt, Co. Clk.
MISCELLANEOUS				
O., Youngstown	.....11 a.m. Oct.	29	Auto ambulance	I. M. Hogg, Co. Aud.
N. J., Jersey City	.....4 p.m., Oct.	30	Garbage collection	M. I. Fagen, City Clk.
Ga., Atlanta	.....10 a.m., Nov.	1	Sanitary line, terra cotta pipe and Portland cement; lubricating and illuminating oils	S. Smith, Ch. Com. Pub. Wks.
Tex., Dallas	.....	Nov. 3	Heating and ventilating system, plumbing and elevators for jail building	Co. Auditor.
Ind., Covington	.....	Nov. 6	Sixteen voting machines	Co. Comrs.
N. Y., New York	.....12.15 p.m., Nov.	10	Construction of section of Subway	Pub. Ser. Commn.

STREETS AND ROADS

Birmingham, Ala.—Ordinances have been adopted for improvement of various streets.

Marysville, Cal.—State Highway Commission will build six more miles of State Highway in Yuba County.

Oakland, Cal.—City Council has passed ordinance appropriating \$600 out of general fund to pay half expenses of constructing culvert across creek in Walnut Ave., between Courtland Ave. and High St.

San Diego, Cal.—Bids will shortly be received by City Council for improvement of streets at estimated cost of \$250,000. William M. Rumsey is City Engr.

Naugatuck, Conn.—Oct. 21 is day fixed for special freemen's meeting, when it shall be voted upon whether borough shall expend sum of \$20,000 for construction or improvement of section or sections of highway.

Colorado Springs, Colo.—The directors of Chamber of Commerce have adopted resolution asking Board of County Commissioners to appropriate \$75,000 the coming year for good roads improvements.

Seaford, Del.—Campaign is being made for improvement of public roads.

Fort Meade, Fla.—Fort Meade will shortly have miles of concrete sidewalks, council having appointed committee to prepare specifications, get bids, and have sidewalks constructed at earliest possible date.

Gainesville, Fla.—Board of Co. Commissioners is considering matter of calling election under provisions of Section 6560, acts of 1913, for purpose of submitting question of bond issue of a million or more dollars for vitrified brick roads in Alachua County.

Jacksonville, Fla.—Commissioners of Alachua County are preparing for \$1,000,000 bond issue for constructing brick paved roads.

Orlando, Fla.—Election has been called for Nov. 11 for voting on \$600,000 bond issue for brick roads.

Sanford, Fla.—Road bonds in sum of \$200,000 will be sold. It is estimated that this sum of money will build 28 miles of brick roads radiating out of Sanford.

Tavares, Fla.—County Commissioners of Lake County have called election on November 18 for people to decide whether

er this county shall issue bonds to amount of \$500,000 for hard surfaced roads.

Moscow, Idaho.—All wooden sidewalks on Main St. within paving district have been ordered out by Council and new walks constructed of cement are to be laid.

Peoria, Ill.—Construction of 20 ft. cement highway from Kickapoo bridge in Bartonville, distance of nearly 2 miles, is recommended.

Muncie, Ind.—Road bond issue of \$5,220 of Delaware County has been sold.

Noble, Ind.—Notice is hereby given to taxpayers of Noble and Paw Paw Townships in Wabash County, and of Richland Township in Miami County, Ind., that petition for improvement by grading, draining, graveling or macadamizing of highway on boundary line between said Wabash and Miami counties, extending from north line of Section No. 2, Township No. 28 North, of Range No. 5 East to the South line of Section No. 26, Township No. 28 North, of Range No. 5 East in said Wabash County, has been filed in office of Auditor of said Wabash County.

North Vernon, Ind.—Jennings County gravel road bonds to amount of \$6,300 have been sold to Breed, Elliott & Harrison, of Indianapolis.

Council Bluffs, Ia.—Resolutions of necessity for construction of three concrete culverts have been passed. One of resolutions provided for five by five box culvert in southern part of York township, to cost approximately \$390; another for four by five culvert in southeastern part of Norwalk township, to cost \$425; and third for six by six culvert in northwestern part of Grove township, to cost \$650.

Des Moines, Ia.—It has been announced that property owners on 17th st., between Center and Croker, have finally decided in favor of asphalt pavement.

Fort Scott, Kan.—Ordinance has been passed for construction, grading, paving, curbing and guttering that portion of Broadway street extending from south line of Sixth st. to north line of Charles st.

Leavenworth, Kan.—At special meeting of County Commissioners board has approved plans for improvement of Elm Grove Road, which extends four miles northwest of Bonner Springs, and or-

dered County Clerk Hall to advertise for bids. Bids will be opened thirty days from this date.

Whitesburg, Ky.—Letcher Fiscal Court has appropriated \$12,000 for building six miles of model roadway from May King to Kona and constructing three steel bridges in this county, two across Kentucky River, one at Croftsville and the third across Pine Creek, near May King. Construction is to start immediately.

Pointe a La Hache, La.—The Police Jury has created Road District No. 2, situated on west bank and extending from Jefferson Parish line to Cedar Grove plantation. Nov. 11 has been set for election on a 5-mill road tax proposition. Plaques division of shell road will cost about \$10,000.

Baltimore, Md.—Extension of Baltimore St. to western city limits is advocated.

Baltimore, Md.—Six concerns bid for \$130,000 Commission for Opening Streets sheet asphalt contract, covering 41,600 sq. yds. The American Paving & Contracting Co., successor of debarred Elder Co., is lowest bidder for contract. Its price, \$1.64 per sq. yd. for sheet asphalt. The Baltimore Asphalt Block & Tile Co., successor to "Paving Bob" Padgett's old company, was also bidder for big contract at \$1.74. The American Co. was lowest bidder for another Commission for Opening Streets contract. This was small sheet asphalt job, covering paving of Greenway, from Charles to St. Paul St. Low bidder quoted \$1.70 per sq. yd., while the Roland Park Co., next lowest bidder, quoted \$1.80. On contract for 80,000 cu. yds. of grading the American Co. was lowest bidder, quoting 32 cts. per cu. yd. P. Flanagan & Sons was next lowest bidder, which is known as No. 122, and covers the paving of 33rd St., from St. Paul St. to the Hillen Road. For sheet asphalt that company bid \$1.70 per sq. yd., and for grading 39 cts. per cu. yd. The other bidders were: Baltimore Asphalt Block & Tile Co., Austin-Humphrey Co., Frich, Allen & Beasman and the Warner-Quinlan Co.

Elkton, Md.—At special meeting of Cecil County Commissioners \$25,000 in 5 per cent. 30-year bonds were awarded to Townsend, Scott and Sons, of Baltimore, who bid \$20,381. Proceeds will be used in making permanent gravel and stone roads.

Mansfield, Mass.—Board of Survey are discussing plans received by Board, with petitions, for approval of layout of streets. One plan called for relocation and widening of Oak St., starting at the Briggs' school house on Elm St., and continuing to the Norton line. Another petition asked for layout and relocation of West St., from School St. to Walnut St. Another requested layout and relocation of Park St., East St. from North Main St. to easterly end of Pratt St., and intersecting streets between Park and East Sts.

Dowagiac, Mich.—Fifteen miles of improved highway, one for each township in Cass County, has been recommended by Board of County Highway Commissioners.

Flint, Mich.—County Road Commissioners have asked Board of Supervisors to issue another series of good road bonds to amount of \$100,000. Road Commissioners in asking for issuance of bonds explained that they planned building 75½ miles of good roads next year in addition to what has already been planned and bonds issued for. Following are roads commissioners plan building: Montrose Township, Nichols Road, one mile; McKinley Road, 3¼ miles. Vienna Township, Linden Road, 2 miles. Thetford Township, Center Road, 3½ miles. Forest Township, Frances Road, 1 mile; state road, 2½ miles. Mt. Morris Township, Mt. Morris Road, 4 miles; Elm Road, 1 mile; Clio Road, 1 mile. Genesee Township, Mt. Morris Road, 3 miles; Richfield Road, 2½ miles; Belsay Road, ½ mile. Richfield Township, State Road, 1 mile; Coldwater Road, 2 miles; Richfield Road, 1½ miles; Vassar Road, 1 mile. Clayton Township, Seymour Road, 3 miles; Morrish Road, 1 mile; Bristol Road, 1 mile. Flint Township, Flushing Road, 2½ miles. Burton Township, Maple Road, 1½ miles; Belsay Road, 1 mile. Davison Township, State Road, 2 miles. Gaines Township, Grand Blanc Road, 1 mile; Duffield Road, 3 miles; Miller Road, 1 mile. Mundy Township, Grand Blanc Road, 6 miles. Grand Blanc Township, South Saginaw Road, 1½ miles; Grand Blanc Road, 3½ miles. Atlas Township, State Road, 5½ miles. Argentine Township, Argentine Road, 3 miles; Byron Road, 2½ miles; Duffield Road, ½ mile. Fenton Township, Silver Lake Road, 3 miles; Argentine Road, ½ mile; Lahring, 1½ miles. Total, 75½ miles.

Duluth, Minn.—County Auditor Odin Halden is calling for bids for construction of State Rural Highway No. 4, better known as Duluth-St. Vincent road, a project to cost in neighborhood of \$115,000, and which will give Duluth main trunk road through Floodwood to the Itasca County line and from there on to Grand Rapids, Bemidji and Cass Lake.

International Falls, Minn.—Bids will be opened by County Board Oct. 20, for construction of 198 miles of highway in Koochiching County. Bonds in sum of \$300,000 have been authorized.

St. Paul, Minn.—Bids are to be asked by Board of Public Works upon two propositions for opening of Ninth St. between Smith and Summit Aves. One proposition provides for a 7 per cent. grade, which is that of the Selby tunnel, while other provides for a 6 per cent. grade, that of Sixth St. between Washasha and Cedar Sts.

Gulfport, Miss.—A five-hundred mile asphalt highway from Corinth and Vicksburg to Gulfport, via Meridian, is a project being considered.

Meridian, Miss.—Bond issue of \$100,000 has been approved for construction of good roads.

Vicksburg, Miss.—Warren County Board of Supervisors are discussing \$300,000 bond issue for improving principal roads of county.

Joplin, Mo.—City Council will pave Fifth st., from Wall st. to Jackson av. City Engineer will prepare estimate of cost of proposed improvement. C. B. Anderson is City Engr.

St. Joseph, Mo.—An ordinance has been adopted to provide for constructing combination curb and gutter and sidewalks on Fifth Ave. from 12th St. (south) to points opposite the east line of lot 9, block 13, Walker's Second Addition.

Billings, Mont.—Proposed pavement of six blocks on North 27th st. is being discussed.

Audubon, N. J.—Mayor Brown of Audubon has instructed Engineer John J. Albertson to prepare plans for paving streets, following appearance in body of Board of Trade before Council to ask for the improvement.

Belleville, N. J.—Belleville Town Council has voted to recommend to Board of Freeholders that Washington Ave., in that town, be widened 5 ft. on each side. Widening of Rutgers St., from approach

of Belleville bridge to Washington Ave., will also be urged in letter to county body.

Belleville, N. J.—Ordinances have been adopted for improvement of new Bridge St. and Joramelon St. E. E. Mathes is Town Clerk.

Elizabeth, N. J.—Repaving of Broad st. is being urged.

Merchantville, N. J.—Borough of Merchantville is negotiating with Pensauken Township authorities relative to paving of streets centre of which is boundary line between the two.

Perth Amboy, N. J.—Ordinances have been introduced to place Amesite pavement material on most streets in southern section of city, between Central R. R. tracks and Madison Ave. Ordinances were passed upon their first reading for following: To pave Elm St., between Market St. and New Brunswick Ave. with a 6-in. concrete pavement to have a bituminous top; to pave First St. from Market St. to a point 63 ft. south of Lewis St. with Amesite; to pave Brighton Ave., between Lewis and Gordon Sts. with Amesite; to pave Paterson, between Madison Ave. and Second St., with Amesite; to pave Catalpa Ave., between Brighton Ave. and Lewis St., with Amesite, and to pave Lewis St., between Madison Ave. and First St., with Amesite.

Brooklyn, N. Y.—Authorizations have been given for 48 public undertakings in Brooklyn and Queens, estimated total valuation of which is \$257,400. Of above mentioned 18 are final authorizations for Brooklyn, aggregating \$72,500 and 19 are preliminary authorizations for same borough aggregating \$98,600. There are 3 final authorizations for Queens aggregating \$49,300 and 8 preliminary totaling \$37,000. Following is list of final authorizations at last meeting: Brooklyn—Regulating and grading Montgomery St., estimated cost \$6,800; regulating and grading Crown St., from Kingston Ave. to Albany Ave., estimated cost \$7,000; regulating and grading West 36th St., from Neptune Ave. to Canal Ave.; estimated cost \$2,800; paving with asphalt (preliminary pavement). President St., from Franklin Ave. to Bedford Ave., estimated cost \$6,300; paving with asphalt (preliminary pavement). 8th St., from 14th Ave. to 16th Ave., estimated cost \$10,700; paving with asphalt (preliminary pavement) 68th St., from 5d Ave. to 4th Ave., estimated cost \$5,500; regulating and grading Webster Ave., from Gravesend Ave. to 47th St., estimated cost \$1,500; paving with asphalt (preliminary pavement) Union St., from Franklin Ave. to Bedford Ave., estimated cost \$6,300; paving with asphalt (preliminary pavement) Amboy St., from Sutter Ave. to Blake Ave., estimated cost \$3,800. In Queens—Regulating and grading Jefferson Ave., from the Brooklyn borough line to Cypress Ave., Ridgewood, estimated cost \$4,800; regulating and grading Sedgwick St., from Catalpa Ave. to Hughes St., estimated cost \$2,300.

Oswego, N. Y.—Contract for construction of State highway connection in West First St. between brick pavement and West River road will be readvertised.

Syracuse, N. Y.—Alderman Apps has filed petition of property owners for paving of Ostrom Ave., from Euclid Ave. to Madison St.

Theresa, N. Y.—Nearly \$200,000 will be spent around Theresa for improvement of highways during next year.

Newton, N. C.—Second half of Hickory Township road bonds have been sold at Commissioners' meeting to firm in Toledo. No bids were received for Newton bonds.

Canton, O.—Farsenson & Co., of Chicago have been awarded \$50,000 issue of bonds for paving of Massillon-Navarre road by County Commissioners.

Dayton, O.—Paving of Lorain Ave. and Burkhardt Ave. is being considered.

Salem, O.—Bids will be received by George Holmes, City Auditor, until 12 noon, Nov. 3, for purchase of bonds in sum of \$1,515 for improvement of various streets.

Van Wert, O.—Special election will be held in Ridge Township November 4 for purpose of passing upon question of levying taxes to create \$10,000 with which to purchase stone quarry, output to supply stone for upkeep of public roads.

Eugene, Ore.—Ordinance has been passed for improvement of Grand St. from city limits to Railway Boulevard.

Altoona, Pa.—Legislation has approved of paving of about 16 blocks, all located in the Ninth Ward.

Harrisburg, Pa.—Ordinance has been adopted for paving and curbing of Turner Alley from Maclay St. to point south of Forrest St., also part of Maclay St. R. Ross Seamon.

Jenkintown, Pa.—Springfield township's Board of Township Commissioners have demanded action from State authorities which shall result in repairing of Bethlehem turnpike, or at least that section of turnpike which traverses township.

Pittsburgh, Pa.—The South Hills Board of Trade has unanimously adopted resolutions endorsing issue of \$50,000,000 good roads bonds and urging its members so to vote at coming election.

Plymouth, Pa.—Ordinance has been adopted authorizing and directing grading, curbing and paving of all that portion of West Main St. in borough of Plymouth extending from railroad track of Lehigh & Wilkes-Barre Coal Co. to division line between Plymouth Borough and Plymouth Township.

Reading, Pa.—Ordinances have been adopted for various street improvements.

Seranton, Pa.—Members of city planning commission voted to recommend to City Council that steps be taken to widen West Linden St., between Ninth and North Main Ave.

Sharon, Pa.—Council has instructed secretary to advertise for bids for paving of section of Budd Ave.

Westerly, R. I.—Voters have appropriated \$15,000 for improvement of highways along shore.

Woonsocket, R. I.—Aldermen have voted to establish grades on various streets.

Knoxville, Tenn.—Preparations are being made for grading and macadamizing of Sheridan St. and its approaches, New York Ave., Connecticut Ave. and Delaware Ave. City Engineer has made estimates as to cost which should be incurred by making the proposed improvements, and at last night's meeting of Council Street Committee was instructed to solicit bids for the work.

Clarksville, Tex.—Systematic campaign is being inaugurated here for issuance of \$200,000 in good roads bonds.

Dallas, Tex.—Bids have been opened by Board of Municipal Commissioners for paving of parts of eight streets. The total will be more than 105,000 square yards and total cost will be more than \$350,000. With storm sewers, gutters and curbing cost will be somewhat higher, probably \$400,000, of which city will have to pay only about half. The bids of various contractors differed little between different streets. The range of bidding, which will be tabulated by City Engineer before report on bids is made, is shown by following figures from bids: Texas Bitulithic Co., for bitulithic, \$2.22 to \$2.30, the second figure in all bids showing five-year maintenance. General Const. Co., 4x4x8 wooden blocks, creosoted, \$3.38 to \$3.43; 3½x4x8 blocks \$3.16 to \$3.21; 3x3x8-in. blocks, \$2.88 to \$2.93. Roach-Manigan Paving Co., wooden blocks, creosoted, 4x4 inches, \$3.41 to \$3.46; 3½x4 inches, \$3.14 to \$3.19; 3x4 inches \$2.87 to \$2.92; Bermudez asphalt, \$1.87 to \$1.92. Standard Engineering & Const. Co., for Westrumite, \$1.95 to \$1.97. Creosoted Wood Block Paving Co., 4x4 blocks of creosoted wood, \$3.42 to \$3.47, 3 1-3x4 blocks, \$3.15 to \$3.20, 3x4 blocks, \$2.88 to \$2.93. Municipal Paving Co., on Young St. only, for 3½x4-in. creosoted wood blocks, \$3.37 to \$3.47, or ten years for \$3.57; 3x4 blocks \$3.07 to \$3.17, for ten years, \$3.37. J. A. Gregory, for Garrett Ave. only, macadam, \$1.28 per sq. yd.

Fort Worth, Tex.—Preparations are being made to grade Azle St., from Broadway, the north side city limits, to Main St.

Franklin, Tex.—Franklin County bond issue of \$500,000 for good roads has been approved.

Gordon, Tex.—Petition has been presented Commissioners' Court requesting that election be called to vote on \$175,000 good road bond issue. If issue carries funds will be distributed among different precincts of Palo Pinto County.

Hillsboro, Tex.—Acting on numerous signed petition of citizens of Justice precinct No. 1 of Hill County, Commissioners' Court has ordered election for Saturday, Nov. 15, to determine whether county shall issue \$250,000 worth of good roads bonds for precinct.

Houston, Tex.—Three of leading banks of city have decided to take \$1,200,000 paving and sewerage bond issue recently voted by the city.

Kingsville, Tex.—Bond issue of \$32,000 for street improvements is being considered.

Magnolia, Tex.—It is expected that work will commence shortly on \$250,000 system of good roads in District No. 2. Road bonds to that amount were recently voted in this precinct.

Uvalde, Tex.—Bond election will be held Nov. 15 for voting on \$20,000 street improvement bonds.

Lynchburg, Va.—Sum of \$1,000 has been appropriated for paving 17th St. between Campbell and Garfield Aves.

Mt. Vernon, Va.—Voters of Mt. Vernon District, Fairfax County, will vote in November for bond issue of \$90,000 for road improvements.

Norfolk, Va.—Additional paving is being considered in various streets.

Norfolk, Va.—If recommendations agreed upon by 14th Precinct Committee of Council are carried out, about \$8,500 will be expended for paving improvements in Princess Anne Ave., Ruffin Way and 28th St., in old Ninth Ward section.

Everett, Wash.—Firm of John E. Price & Co., of Seattle, proved successful bidders for bonds of improvement district No. 279, 16th St., when bids were opened at meeting of City Commissioners. Bid was for full amount of bonds, \$13,797.07, at par and accrued interest.

Seattle, Wash.—Resolutions have been adopted for improvement of various streets.

Janesville, Wis.—Oiling of paved streets next year has been authorized.

Racine, Wis.—Council has voted a \$25,000 bond issue for street improvements.

Rio de Janeiro, S. A.—Detailed information is on file at offices of American Manufacturers' Association, 66 Broadway, concerning large contract soon to be let by authorities of Rio de Janeiro for paving city's streets for period of eight years. Contract provides for 500,000 sq. meters of paving to be laid annually. Current issue of association's bulletin says that it is believed this work can be secured by American firms which will immediately enter into negotiations.

CONTRACTS AWARDED.

Los Angeles, Cal.—To Conner Contracting Co., contract for construction of oil macadam paving and culverts on road between Puente and Covina, in Road Improvement District No. 19, at \$23,989, and for paving, constructing curbs, gutters and storm drains on Shatto Pl., to Barber Asphalt Paving Co., of Los Angeles, at \$6,383.

New Haven, Conn.—For paving intersection of Davenport, York and Cedar Sts. with sheet asphalt to C. W. Blakelee & Sons, 58 Waverly St., at \$1.13 per sq. yd.

Brevard, Fla.—Board of County Commissioners has let contract for new hard surfaced road through this district to Florida East Coast Construction Co. for clearing, grading and surfacing road between Eau Gallie and Bonaventure for sum of \$23,450, with additional sum of \$1,270 for extra work.

Titusville, Fla.—County Commissioners have awarded contract for hard-surfaced road from Bonaventure to Eau Gallie, between ten and eleven miles. Contract was awarded to Florida East Coast Construction Co., of Cocoa, \$23,420 for road work, while contract for concrete work was awarded to Lightman, McDonald & Co., of Jacksonville, for \$4,075.

Albion, Ill.—By Board of Local Improvement for paving in Districts 2 and 3, as follows: District 2, to Maylor & Gilard of Albion, as follows: 3,600 sq. yds. paving with Albion shale brick, \$1.63½; 3,400 lin. ft. combined curb and gutter, 50 cts.; 110 lin. ft. marginal curb, 10 cts.; 20 lin. ft. 10-in. sewer pipe, 15 cts.; 66 lin. ft. 30-in. sewer pipe, \$1.50; 2 storm water inlets, ea., \$12; total \$7,723. Totals of other bids: Elbert Epler, Albion, \$7,839; J. Mannen, Mt. Vernon, \$7,921; Keeley Bros., East St. Louis, \$8,388. District 3, to Elbert Epler, Albion, as follows: 9,800 sq. yds. Albion vitr. brick paving, \$1.62; 9,300 lin. ft. combined curb and gutter, 54 cts.; 300 lin. ft. marginal curb, 15 cts.; 100 lin. ft. 10-in. sewer, 26 cts.; 400 lin. ft. 12-in. sewer, 36 cts.; 700 lin. ft. 15-in., 46 cts.; 6 storm water inlets, ea., \$12.50; extending third street culvert, \$200; total, \$21,710; totals of other bids: J. Mannen, Mt. Vernon, \$21,953, and Keeley Bros., East St. Louis, \$23,425.

Bloomington, Ill.—Board has passed favorably on pavement on Madison St. between Washington and Jefferson Sts., when contract for same was let to I. D. Lain for \$2,839. Danville brick will be used in construction of this improvement.

Wichita, Kan.—For paving by City Commission as follows: First St. with tarvia and with brick on Douglas Ave., to Connelly Construction Co. at \$1.33 and \$1.87 per sq. yd., respectively, and with brick on 2d St. to Ritchie Bros., at \$1.75 per sq. yd.

Lexington, Ky.—To Colly-Reed Co. for improvement of West Short St. at following bid: Asphalt paving, type "A," \$1.30 per sq. yd.; concrete foundation, \$4.50 per cu. yd.; brick gutter, \$1.60 per sq. yd.; header stone, 60 cts. per lin. ft.; cement sidewalks, 16 cts. per sq. ft.; resetting manhole and catch basin tops, \$2.50 each; new manholes, \$30 each; new catch basins, \$40 each; 5-in. pipe, 45 cts. per lin. ft.; 8-in. pipe, 65 cts. per lin. ft.; 10-in. pipe, 75 cts. per lin. ft.; 12-in. pipe, 85 cts. per lin. ft.; 15-in. pipe, 95 cts. per lin. ft.; 10-in. ¼ bends, \$1 each; 15-in. ¼ bends, \$1.50 each.

Louisville, Ky.—For paving with wood block on Market St. by Board Public Works to L. R. Figg Co., of Louisville, at about \$9,540.

Baltimore, Md.—On recommendation of Paving Commission, John E. Quinn was awarded contract No. 68 for paving with recut Belgian blocks of President St. Aggregate bid was \$16,910.90.

Baltimore, Md.—Tabulation by Commissioners for Opening Streets of bids submitted for Contract No. 122, the large Annex job put on the block yesterday, shows American Paving & Contracting Co. to be lowest bidder by \$6,000. B.d. of that company for contract, which is for paving of 32d St., from St. Paul to Hillen Road, is \$117,040.50. B.d. of Austin-Humphrey Co., next lowest bidder, is approximately \$123,000.

Rockville, Md.—For paving with water bound macadam about 3 miles of road from Cohasset Road to District of Columbia line by County Commissioners to Geo. E. Mullen, of Washington, at \$22,000.

Aurora, Minn.—To Lawrence & McCann Co. of Eveleth for laying walks in Second division at 17 cts. per sq. ft. for sidewalks and 19 cts. for crosswalks.

Duluth, Minn.—Three road contracts have been awarded by County Board. Victor Hill will construct 2 miles of Farmers' road in Section 15, 56-15 for \$1,050 a mile; John Takala will build 1 mile of Oakman road in 7th district for \$1,000 and John Stenback has contract for repairing and improving Gowen-Prairie road on east line of Section 34, 51-20, for \$300.

Lincoln, Neb.—For grading and paving roadway on Road No. 667, known as W. P. St., approximately 2,580 ft. long, by County Commissioners to Burke-Cochran Construction Co. Cost at about \$10,000.

Cranford, N. J.—To W. H. Weldon, of Rahway, by Township Committee, for 4,000 sq. yds. amiesite paving at \$6,824. Other bidders: C. H. Winnans Co., Elizabeth, \$6,967; Humphrey & Bently, Hackensack, \$6,952. Edw. Mosher is Township Engr., Cranford.

Kearny, N. J.—By Freeholders, contract for improving Passaic Ave., Kearny from Johnston Ave. to Bergen Ave., to Edward P. O'Neill, whose bid of, \$53,889 was lowest received.

Keypoint, N. J.—For completing laying of improved sidewalks on Broad, First and Second Sts., to Contractor George M. Van Dorn at 14 cts. per sq. ft.

Lodi, N. J.—Bids have been received by Street Committee for macadamizing of Garibaldi Ave. from Main St. to tracks of the N. Y. & W. R. R. Seven contractors bid on the job, but A. W. Gill at 74 cts. and Frank Van Roden at 73½ cts. per sq. yd. were lowest bidders. These two bids were referred to borough engineer for computation.

New Brunswick, N. J.—Board of Freeholders has received bids on proposed extension of sidewalks on Albany St. bridge. A. Jelin, of this city, was lowest bidder. Bids were received as follows: A. Jelin, \$14,177; General Contracting & Engineering Co., \$14,698; Ferrow Concrete Co., \$19,444; S. W. Schwears & Co., \$18,642; Meyers & McGovern, \$16,843; Linn & McGrath & Co., \$18,285; Arthur E. Smith, \$14,800; Conrad Sebolt, \$16,350; Oswego Bridge Co., \$23,185. Bids were referred to Roads Committee and will be reported later.

Newton, N. J.—Contract to build two sections of road from Newton to Branchville has been awarded by Board of Freeholders to Ernest Abraham, of Hackensack, lowest bidder on work. His bid on section from Newton to Ross's Corner, more than four miles, was \$44,102.31, and from that point to Branchville, more than three miles, \$28,089.22.

Gloversville, N. Y.—A. & C. Hine and C. Welsh of this city have been awarded contract for construction of new highway to be built from brick pavement at South Main St., southerly on Harrison St. to north end of the corporation line. Other jobs of highway are included in the contract.

Lockport, N. Y.—Bids for construction of concrete sidewalk on south side of State Road have been received from three contractors as follows: John Irwin, \$587; P. F. Niland, \$590; and H. E. Whitney, \$594. Contract was awarded to John Irwin.

Manhasset, L. I., N. Y.—By Town Board contract for repaving Roslyn-Westbury Road to Miller Paving Co., of Mannattau. Their bid was \$10,635.50. Contract for repaving Station Road, Great Neck, was awarded to Gashman Bros., of Roslyn. Their bid was \$15,373.55. Sum of \$2,000 was appropriated at last election for improvement to Roslyn-Westbury Road and \$20,000 was appropriated at same time for Station Road.

Syracuse, N. Y.—By Board of Contract and Supply to Guy B. Dickson for paving Milton Ave. from Tompkins St. to West Genesee St. with b.l.k., at \$33,140.40. This was lowest b.d. for portion of pavement to be paid for by abutting property owners outside of railway strip. The Warner-Quinnan Asphalt Co. bid \$140 less on the total, but \$43.60 more on area to be paved at expense of property owners.

Dresden, O.—To Adams Bros. Co., Zanesville, O., contract by City Council for construction of one mile of vitrified brick pavement, at \$35,000.

Norwood, O.—By Board of Control, contract for paving Highland Ave. with concrete from Ash to Beach Ave., to George Murdock, at \$12,000. H. C. Hubbel is City Engr.

Springfield, O.—To Wheldon & Musselman, contract for macadamizing Summer St. from York St. to Tibbets Ave., for \$1,427.42.

Troy, O.—County Commissioners are to concrete parts of certain roads to prevent future washouts by floods. Contract for Broadford below the bridge was given O. W. Douglass for \$5,247; Troy and Urbana, near the John McDowell home, to John McDowell, for \$1,675.

Urbana, O.—At meeting of County Commissioners, contract for repairing two miles of road on St. Paris-Rosewood pike was awarded to Korah E. Kunkle, of Dayton at his bid of \$12,372.52; 33 cts. per cu. yd. for excavating and \$2.70 per yd. for the stone used. The work is to be completed by June 1, 1914. The engineer's estimate calls for 9,034 cu. yds. of excavation and 3,479 yds. of stone. Other bidders were H. B. Stevens, of Mechanicsburg, 40 cts. for excavation, \$2.65 for stone; House & Copeland, of Wapakoneta, 40 cts. for excavation, \$2.71 for stone; Kennedy-Warner Co. of Medina, 39 cts. for excavation, \$2.70 for stone; Union Contracting Co. of Bellefontaine, 39 cts. for excavation, \$2.74 for stone.

Halstead, Pa.—To Thomas H. Gill Contracting Co. at \$48,480 for construction of road from point near river bridge across flats through Main St. in Great Bend and on to Riverside.

Norristown, Pa.—By Montgomery Commissioners contract for building 1½ mile of concrete roadway on Lansdale and Gwynedd Square Turnpike to Ambler-Davis Co., of Philadelphia, the cost per mile to be between \$12,000 and \$13,000.

Sioux Falls, S. D.—Bids for construction of cement sidewalk on east side of Second Ave. across the right-of-way of the Omaha Railway have been received as follows: J. A. Ward, 10 cts. per sq. ft.; Myrmo Bros., 11½ cts. per sq. ft., 35 cts. per cu. yd. for extra cut or fill. Contract was awarded to J. A. Ward.

McKenzie, Tenn.—By Mayor and City Council, contract to Clements Construction Co., Memphis, for paving about 60,000 ft. of various residence streets, grading to be done by Steel & Co., Paris, Tenn.

Conroe, Tex.—By Commissioners' Court, contract for building roads in road district No. 1, to J. A. Gregory, Dallas, at \$100,000.

Salt Lake City, Utah.—By Board of City Commissioners, to P. J. Moran for paving various streets under Paving Extension No. 92, at \$40,572; contracts for paving of various streets under Paving Extension Nos. 91 and 76 was awarded to Strange & McGuire, at \$54,061, for extension No. 91, and \$1,500 for No. 76.

Everett, Wash.—Everett contractors have been awarded road constructing jobs by State Highway Commission at Olympia. F. K. Ffolliott is to build two miles of road on Pacific highway between Everett and Marysville, connecting Vernon road and Arlington road. His bid was \$10,500. Ffolliott also will construct fill on Pacific highway between Everett and Silver Lake at Wood's Gulch. This bid was \$4,000. Graff & Bancroft secured contract to surface four miles of Pacific highway leading into Marysville, and be-

ing extension of two miles awarded to Follitt, at \$14,297. Torger Peterson, of Tacoma, was awarded contract to build 4.3 miles of road on national park highway from Alder to Elbe, at \$20,500.

Olympia, Wash.—Two more contracts for construction of highways have been awarded by highway commission. R. H. Hill of Port Townsend secured contract for building nine miles of Olympic highway from Duckabush to Hama Hama, on Hoods Canal, award being made at \$50,767. Four and a half miles of Sunset highway, near Snoqualmie pass, will be built by Quigg Const. Co. of Wenatchee, contract price being \$39,949.

Olympia, Wash.—State Highway Board, after letting four contracts for highway construction, decided to postpone letting of contract for waterfront line in Whatcom and Skagit Counties until outside engineer, to be chosen by Governor, Auditor and Treasurer, has checked Highway Engineer's report relative to certain phases of project. Torger Peterson of Tacoma was awarded contract for National Park Highway from Alder to Elbe, 4.3 miles, for \$20,500. Three Pacific highway contracts were let as follows: Marysville, north 4 miles, to Graff & Bancroft of Everett, \$14,297; Marysville to Everett, to F. K. Follitt of Everett, \$10,500; Woods Gulch fill, in Snohomah County, to F. K. Follitt, \$4,000.

Port Angeles, Wash.—By County Commissioners for constructing about 6.32 miles of highways to Brownrigg & Denio, Port Angeles, \$9,987. Other bids as follows: David & Govan, Port Angeles, \$10,500; Feasch & Goss, Seattle, \$16,587; W. A. Kepuff, Everett, \$11,500; Critchfield & Cotton, Port Angeles, \$16,800; Sloane Bros., Seattle, \$11,000; W. B. Smith, Deputh, is County Aud.

Seattle, Wash.—Following contracts have been awarded by Board of Public Works: Alley, block 18, Capitol Hill Addition, Division No. 2, paving—Elliott Construction Co., \$6,095.96, 29th Ave. North et al., concrete walks, D. H. Traphagen, \$14,616.30; Dexter Ave., planking, Ruthe & Cline, \$15,090.

Spokane, Wash.—By County Commissioners of Pend Oreille County contract for permanent highway that is to be built from Metaline one mile northward to John McInnis Sr. of Spokane, for \$8,500. It will be built of water macadam.

Spokane, Wash.—County Commissioners has awarded contract to John Fife for building 1,700 ft. cut off on Big Springs Road at east city limits. New strip of road is to be built to avoid dangerous crossing over Spokane and Inland on old road. Contract price is \$1,500.

Tacoma, Wash.—Contract for construction of National Park highway from Alder to Elbe, 4.3 miles, has been awarded by State Highway Commission to Torger Peterson, former chairman of Board of County Commissioners, for \$20,500. Last Legislature appropriated \$60,000 to be spent on this road. It originates at Willapa Harbor and runs almost due east through Chehalis, then around national forest and thence through Morton to Elbe, where it connects with Tacoma-Mount Tacoma road, or canyon road.

Green Bay, Wis.—To McGrath Construction Co., for paving of Cass St. with concrete pavement.

Burnaby, B. C.—For construction of about 10 miles of concrete sidewalks by City Council to Hedzson & King, 319 Pender St., Vancouver, B. C.

BIDS RECEIVED.

Perth Amboy, N. J.—Following are bids for two sections of the Roosevelt Woodbridge road, which are to be improved: Thomas H. Riddle—For foundation A and surface H, \$30,586.38; for foundation A and surface G, 3, \$31,319.10. C. H. Winans & Co.—For foundation A and surface H, \$33,386.70. Newton Paving Co.—For foundation A and surface G, 1, \$34,503.80. Conrad Sebolt—For foundation A and surface G, 1, \$28,059.90; for foundation A and surface G, 3, \$33,005.76. Thomas F. Dunigan—For foundation A and surface H, \$30,793; for foundation A and surface G, 1, \$28,527.56. Diddle & Pfeiffer—For foundation A and surface H, \$33,748.02; for foundation A and surface G, 1, \$33,748.02. Wilson Contracting Co.—For foundation A and surface H, \$37,291.30. East Jersey Lumber and Timber Co.—For foundation A and surface G, 1, \$32,937.16. Second Section—Thomas F. Dunigan—For foundation A and surface G, 1, \$46,226.54; for foundation A and surface H, \$48,341.10; for foundation M and surface J, \$44,376.30. C. H.

Winans Co.—For foundation A and surface H, \$53,536.40; for foundation M and surface J, \$53,836.40. Newton Paving Co.—For foundation A and surface G, 1, \$53,038; for foundation M and surface J, \$47,430. Conrad Sebolt—For foundation A and surface G, 1, \$44,120.70; for foundation A and surface H, \$48,614.14; for foundation M and surface J, \$40,420.22. Thomas H. Riddle—For foundation A and surface G, 1, \$44,685.64; for foundation A and surface H, \$47,664.52; for foundation M and surface J, \$39,399.24. Liddle & Pfeiffer—For foundation A and surface G, 1, \$52,367.08; for foundation M and surface H, \$52,367.08; for foundation M and surface J, \$48,402.48. Weldon Construction Co.—For foundation A and surface H, \$56,638.70. East Jersey Lumber and Timber Co.—For foundation A and surface G, 1, \$49,156.84; for foundation M and surface J, \$44,663.40. Bamberger Chattan Co.—For foundation A and surface G, 1, \$53,653; for foundation A and surface H, \$54,974.60; for foundation M and surface J, \$47,573.64.

SEWERAGE

Birmingham, Ala.—Ordinance has been adopted for construction of certain sanitary sewers.

Brevton, Ala.—Construction of sewerage system is being considered.

Mountain Creek, Ala.—Citizens of Clinton are to vote on question of issuing \$35,000 in municipal bonds, proceeds of sale of which are to be used for sewer building and water works improvements.

Oakland, Cal.—Upon recommendation of Commissioner of Streets W. J. Baccus, the City Council has adopted plans and specifications for sewerage of portions of Fruitvale and Whittle Aves., and instructed City Engineer to commence proceedings for laying sewer in Frederick St., between Kennedy and East Valdez Sts.

Oakland, Cal.—Resolution has been adopted for construction of sewers in portions of Fruitvale Ave. and Whittle Ave.

Carrollton, Ill.—H. L. Caldwell of Jacksonville has been made public engineer of city and is preparing plans for sanitary sewer system.

Council Bluffs, Ia.—E. A. Wickham's bid was undoubtedly the lowest for construction of sewer system, an unofficial tabulation giving total cost for pipe, manholes and pumping station completed as \$135,699.98. The Lana Const. Co., also of this city, was next lowest bidder, unofficial total being \$141,536.91. The other bidder, the H. J. Cathroe Co. of Omaha, gave figures totaling \$146,682.60, unofficially. No contract was let, bids being referred to City Engineer and City Clerk for tabulation.

Dubuque, Ia.—Resolution has been adopted for construction of sanitary sewer of 8-in. tile pipe in alley between Peru Road and Milwaukee Ave. to present sewer in Jackson St.

Iowa City, Ia.—About one mile of pipe sewers will shortly be constructed.

Lexington, Ky.—Resolution has been adopted for construction of sanitary sewer on Pine St.

St. Paul, Minn.—Following sewer improvements have been recommended: South St. sewer extension, \$31,500; Gaultier, from A'water to Sycamore, \$3,500; Hall Ave., \$2,900; Terry-Griffith, \$15,000; Park Ave., from South St. to Maryland Ave., \$2,500; Urban Pl., from Maria to Bates Ave., \$8,500; West 7th St. extension, \$17,000.

St. Paul, Minn.—Bids will shortly be asked for construction of sewers.

Elizabeth, N. J.—Ordinances have been adopted for construction of sewers in various streets.

Irrington, N. J.—Ordinance has been passed for laying of 8-in. sanitary sewer in Harper Ave. M. Stockman is Town Clerk.

New Brunswick, N. J.—Resolutions have been adopted for construction of sewers in various streets. John J. Curran is Street Commissioner.

Princeton, N. J.—Ordinance has been adopted on first reading, authorizing construction of sewer on Witherspoon Lane, as part of large sewer extension on northern side of town. It is expected it will be ready for use in November.

Brooklyn, N. Y.—Following is list of final sewer authorizations at last meeting. In Brooklyn—Sewer in East Fourth St., from Fort Hamilton Ave. to Caton Ave., estimated cost \$1,300; sewer in 70th St., from the existing sewer about 159 ft. east of 17th Ave. to 18th Ave., estimated cost \$2,200; sewer in Snediker Ave., from Newport St. to New Lots road, estimated

cost \$1,700; sewer in 77th St., from 17th Ave. to 18th Ave., and receiving basin at the easterly corner of 77th St. and 18th Ave., estimated cost \$3,700; sewer in Slocum place, Coney Island Ave. to East 11th St., estimated cost \$1,100; extending sewer in 71st St., from its present terminus at the shore line of New York Bay westwardly a distance of about 230 ft., estimated cost \$2,700; sewer in East 95th St., from Clarkson Ave. to Ave. A, estimated cost \$14,700; sewer in Riverdale Ave., from Douglass to Saratoga Ave., estimated cost \$800; sewer in 71st St., from 15th Ave. to New Utrecht Ave.; New Utrecht Ave., westerly side, from 70th St. to 72d St., estimated cost \$3,600. In Queens—Sewers in Thedford Ave., from Beaufort Ave. to Chichester Ave.; Chichester Ave., from Thedford Ave. to Vanderveer Ave.; Vanderveer Ave., from Chichester Ave. to Fulton St. Richmond Hill; estimated cost \$42,200.

Larchmont, N. Y.—Plans and specifications for sewage disposal works are being prepared by Hering & Gregory, Consulting Engineers, New York.

Syracuse, N. Y.—Plans are being prepared in City Engineer's office for system of sewers in Victoria Pl., Clark St., Concord Pl. and Clarendon St. which will take care of water which has been source of annoyance to residents.

Dunn, N. C.—Town of Dunn has sold her sewerage bonds to Weil, Roth & Co., Cincinnati, O.

Wilmington, N. C.—The \$100,000 recently borrowed by City Council with which to complete extensions to municipal sewerage system has been placed to credit of City Clerk and Treasurer and is now available for work on sewerage extension.

Cincinnati, O.—State Board of Health has approved plans for intercepting sewer in Mill Creek.

Columbus, O.—Plans are now being prepared for extension of sewerage disposal plant to be presented for approval to State Health Board at early date. Cost of improvement will range from \$150,000 to \$200,000 for which bonds must be sold.

Dayton, O.—Construction of storm water sewers in various streets is being considered.

Kennedy Heights, O.—Bids will be received by Henry Appleton, Clerk of Village for purchase of bonds in sum of \$23,704.60 for construction of sewers in various streets.

Salem, O.—Bids will be received by George Holmes, City Auditor, until 12 noon, November 3, for purchase of bonds in sum of \$2,800 for improvement of disposal plant.

Toledo, O.—Representatives of City Engineering Department are casting about for sites for sedimentation tanks and pumping stations to be installed by city in conformity with order of State Board of Health. State Board has ordered that pollution of Swan and Ten Mile Creeks be stopped by some treatment of sewage of city. Plans are now made for submission to State Board of Health at its November meeting call for two intercepting sewers two systems of sedimentation tanks and two pumping stations, which will cost, it is estimated, \$750,000.

Erle, Pa.—Ordinances have been adopted for construction of storm water sewers in various streets.

York, Pa.—Additional appropriation of \$3,500 has been made for completion of Vine St. sewer.

Sioux Falls, S. D.—Purchase of various lateral sewers from Union Sewer Association has been authorized.

Kingsville, Tex.—Bond issue of \$52,000 for sewerage purposes is being considered.

Uvalde, Tex.—At meeting of Uvalde City Council bond election was ordered held November 15, to vote on issue of \$35,000 sewerage bonds and \$20,000 street improvement bonds, total of \$55,000.

Wharton, Tex.—Citizens have authorized \$15,000 bond issue for construction of sewer system. G. S. Gordon is Mayor.

Merrill, Wis.—A \$40,000 concrete sewer will be constructed. Peter Odegard is City Engineer. Ernest McCullough, Monadnock Block, Chicago, is Consulting Engineer.

Superior, Wis.—Edward Banks, City Engineer, is preparing plans for improvement and extension of sewer system. Estimated cost \$50,000.

CONTRACTS AWARDED.

Brundidge, Ala.—To J. B. McCrary Co., of Atlanta, Ga., contract for constructing sewer system at about \$10,000.

Bloomington, Ill.—To L. A. Lederer, pipe sewer on Taylor St. from Clinton to McLean Sts. at \$1,092.25.

De Kalb, Ill.—To Henry Rees, 1414 Spring St., Quincy, for construction of pipe sewers to cost about \$118,000.

Council Bluffs, Ia.—E. A. Wickham has been given contract for construction of West Council Bluffs sewer system by City Council. Price of contract was \$138,096.35. Bid with concrete pipe by Wickham was \$135,708.60. Lana's bid on the contract with 36-in. concrete was \$141,531.91, and he did not consider the vitrified pipe. The H. J. Cathroe Co., of Omaha, entered, but on bid, total being \$144,690.76.

Council Bluffs, Ia.—Contract for construction of Lateral C sewer in Wilson subdistrict has been awarded to Sac City Cement Co. of Sac City, Ia., and Clary Bros. of Missouri Valley, Ia., former to furnish tile needed and latter labor. Total cost of the contract approximates \$2,200. Five bids were entered, next lowest amounting to about \$2,400.

Pittsfield, Mass.—Board of Public Works has voted to award to George W. Gimlich & Co. contract for drain on New West St. It was also decided to construct crosswalks over Livingstone St. at Elm St. and over Dalton Ave. at Woodlawn Ave.

Atlantic City, N. J.—Contract for construction of new laterals in lower section of city has been awarded to Edward L. Bader on low bid.

Newark, N. J.—Award of contracts for construction of three sections of Passaic Valley trunk sewer will be made in a few days. Bids received were for the northern part of section No. 6, to Hamburg Pl.; section No. 8, known as the open trench section in the northern part of the city, and section No. 19, in Garfield. Ryan & Riley, of Baltimore, made the lowest offer for section 6, with a total bid of \$200,472, and the Peerless Construction Co., of Brooklyn, was lowest on the other two jobs, with bids of \$116,828 for the work on No. 8, and \$80,229 for the Garfield section. Some of the other bids were as follows: Section No. 6, Charles A. Haskins, Boston, \$208,901; Booth & Flynn, of Newark and Pittsburgh, \$209,155; A. L. Guidone & Co., New York, \$217,200; Litchfield Construction Co., \$223,400; William Horn, New York, \$229,840. Section No. 8, A. L. Guidone & Co., \$123,550; O'Gara & McGuire, Newark, \$134,630; William Horn & Co., \$145,200. Section No. 19, Ryan & Riley, \$83,178; L. B. Harrison, New York, \$86,133.

Watertown, N. Y.—Board has accepted bid of A. L. Burton & Sons of \$1,686 for construction of sanitary sewer in Lansing St. from Seymour St. to St. Mary St. and for removing old sewer. Bid of Burns Brothers & Haley of \$4,208.60 for laying of Cooper St. sewer has been accepted. Contract for South Hamilton St. sewer, between Salina and Franklin Sts. has been awarded to Allard and Goodrich upon a bid of \$1779.41.

Watertown, N. Y.—City Engineer Earl W. Sayles has figured bids on Mill St. sewer contract, which were presented to Board of Public Works. Lowest bidder was L. C. Murray with bid of \$1,672.50. Other bidders were A. L. Burton & Sons, \$2,124; Allard & Goodrich, \$2,334 and Hodge & Foster, \$2,421.50.

Durant, Okla.—For construction of electrolytic sewage disposal plant, not including electrical machinery, from plans of the Benham Eng. Co., Oklahoma City, to Tonkawa Constr. Co., Brl'n-game, Kan., at \$8,356. Other bidders: Reinhart & Donovan Co., Oklahoma City, \$8,750; Hunter & Hunter, Oklahoma City, \$8,839, and Swatek & Parker, Oklahoma City, \$10,529.

Eugene, Ore.—Contracts for two sewers between Fourth and Fifth Aves. in Walters and Seiferts addition to Eugene to connect to Polk St. trunk sewer have been let to C. H. Meyers and Dan McFarland. The one, 1,102 ft. of 8-in. sewer will cost \$529; the other will cost \$182.53.

McKeesport, Pa.—Sewer Committee of Council has opened bids for construction of three new sewers. For sewer in Ash St., Orville Hough received contract at his price of \$130. D. White got contract for sewer in St. John alley from Starkhamp St. to Grandview Ave., his price being \$651.14. Sewer in St. John alley to Starkhamp St., 65 ft. west more or less was given to Bolser Contracting Co. at \$101.84.

Sioux Falls, S. D.—Contract for construction of lateral sewer on 17th St. from Summit Ave., has been awarded to Myrmo Bros. on their bid of \$352.80. Contract for lateral sewer on 20th St. from Fourth Ave. to Seventh Ave., to Myrmo Bros., on their bid of \$735.40, and for lateral sewer on Duluth Ave., to Myrmo Bros., on their bid of \$494.80. W. C. Lyse is City Auditor.

Ogden, Utah.—To J. P. O'Neill Construction Co., contract for building sewer district No. 119 at \$3,100.

Toronto, Ont.—By Board of Works contract for sewers as follows: To John Maguire, for constructing the Earls court system, at \$47,897; to the Godson Contr. Co. for the Danforth Ave. sewers at \$68,800 and same company for Morrison Ave. sewer, \$17,487, and to the Works Dept. for Esplanade sewers at \$11,000.

WATER SUPPLY

Mountain Creek, Ala.—Citizens of Clanton are to vote on question of issuing \$35,000 in municipal bonds, proceeds of sale to be used for water works and sewer improvements.

Selma, Ala.—Extension of water works has been authorized.

Tuscaloosa, Ala.—Sum of \$100,000 is to be used in extending and improving municipal water works system.

Booneville, Ark.—City Council is considering petition to form water works district for purpose of constructing water plant.

Colusa, Cal.—Town Trustees have entered into agreement with owners of Cook's waterworks to buy system for \$4,000 provided that it is free from all encumbrances.

Princeville, Ill.—W. S. Shields, of Chicago, is engineer for the proposed water works, to cost \$25,000. Bids for well will be received at once, and balance of work probably in the spring.

Wilmington, Ill.—The citizens are reported to have voted to issue \$12,000 bonds for water works extensions.

Lenox, Ia.—Bond issue of \$32,000 has been authorized for installation of water works system.

Cottonwood Falls, Kan.—Special election has been called by Strong City, Oct. 7, for purpose of voting on bond issue to build and maintain water works system. By unanimous vote City Council has passed ordinance favoring installing of complete water works system for town and for this purpose it is proposed to issue bonds to amount of \$20,000.

Holton, Kan.—City Commissioners of Holton have passed ordinance authorizing issuance of approximately \$70,000 in bonds for extension and improvement of waterworks system.

Carlisle, Ky.—Ordinance has been introduced to submit to voters of Carlisle question of voting \$30,000 for purpose of building waterworks system for Carlisle.

Baltimore, Md.—An appropriation for construction of new pumping station will be requested by Water Engineer Whitman in 1914 estimate of the Water Department. New pumping station will take place of Druid Lake pumping station, and will cost \$200,000 if one operated by steam is adopted or \$100,000 if an electrically operated one is used.

Wayne, Mich.—Plans are under preparation for water works system to cost about \$27,000.

Kalispell, Mont.—Kalispell has decided to issue bonds in the sum of \$175,000 for the purchase of the present water system and construction of new reservoir to hold from 1,000,000 to 2,000,000 gallons. Reservoir will be of reinforced concrete construction, 80 ft. in diameter, and 40 ft. high, with walls ranging from 1 to 3 ft. thick.

Auburn, Neb.—Bonds for \$17,000 have been voted at special election for purpose of enlarging present water system and installation of municipal light plant.

Manchester, N. H.—Bond issue of \$100,000 water bonds will be sold by Mayor and Finance Committee.

Atlantic City, N. J.—Bids have been received for completion of new \$450,000 water main across meadows. Contract has not yet been awarded.

Atlantic City, N. J.—Bonds in sum of \$450,000 for improvements to water main system will be sold.

Perth Amboy, N. J.—Extension of water mains is under consideration.

Trenton, N. J.—Bids have been opened for furnishing and installation of two 250 horsepower water tube boilers for water pumping station. Lowest bid was submitted by Heine Safety Boiler Co., of Philadelphia, which bid \$12,590 on shaking type and \$15,050 on a boiler equipped with Wetzel mechanical stoker. Murray Iron Works Co. of Burlington, Ia., bid \$12,641 on shaking type and \$15,341 on boiler equipped with the Wetzel stoker. As bid of E. Keeler Co. of Williamsport was not accompanied by the proper check, it was ruled out. The company's figures were \$13,118 on shaking type and \$15,815 on Wetzel stoker equipped. Bids were referred to Department of Streets and Public Improvements.

Canton, N. Y.—Installation of filtration plant and meter system is being considered.

Union, N. Y.—Extension of water works system has been voted for.

Bellefonte, Pa.—Bond issue of \$22,000 is being considered for installation of water works system.

Niles, O.—Bids will be received at office of Auditor of city of Niles, until 2 p. m., Nov. 6, for purchase of bonds in aggregate sum of \$900, issued for purpose of purchasing equipment for the waterworks department. Homan Thomas is City Auditor.

Altoona, Pa.—City Engineer Engstrom has complete work of preparing specifications for construction of filtration plant and outfall sewer for disposal of sewage of eastern half of city, and he will begin to advertise for bids.

Mont Alto, Pa.—Construction of water plant is being planned.

Reading, Pa.—Secretary has been directed to prepare legislation, and present it to Councils, for laying of water main on Fourth St. from Greenwich to Lebanon Valley R. R. bridge.

Dallas, Tex.—Seven bids for furnishing of 700 or more water meters to city have been rejected by board. Committee was authorized to proceed to procuring of meters either at public bidding or private sale.

Galveston, Tex.—Extension of water mains is being considered.

Abingdon, Va.—At meeting of Town Council arrangements have been made to put down pipe line on Front St. Distance to be piped is about 2,050 ft. Three-inch galvanized iron pipe will be used.

Norfolk, Va.—Larger water mains are being discussed.

Winnipeg, Can.—Winnipeg will spend \$13,500,000 in order to obtain entirely new water supply and aqueduct five feet wide will be constructed 95 miles east to Shoal Lake, offshoot of the Lake of the Woods, in province of Ontario. Project will be the means of sending 85,000,000 gallons of water a day to city by gravitation, as lake is 320 ft. higher than streets of Winnipeg. A reservoir with capacity of 250,000,000 gallons will be built five miles east of city at cost of \$400,000. Line will take \$40,000 a year for maintenance. Scheme will provide water for city until it has a population of 850,000, or four times what it is now. The engineers were Rudolph Herring, James H. Fuertes and Frederick P. Stearns.

CONTRACTS AWARDED.

Brewton, Ala.—By City Council to J. R. McCreary Co. Atlanta, Ga., for construction of water and electric light plant.

Bloomington, Ill.—D. H. Rider was successful in getting three water main jobs. He was awarded contract for water main on Livingston and Clay Sts. for \$2,549.14. His bid on Lincoln, Baker and Wright St. water main was \$3,065.22 and on the Mason St. water main from Gray Ave. his bid being \$1,092.35.

Lenox, Ia.—By City Council to Bosh & Gray of Joplin, Mo., at \$26,352, for furnishing material and constructing water works to consist of 7,100 ft. 6 in. and 15,200 ft. 4-in. c-i. pipe; 8,100 ft. galvanized iron pipe; 28 hydrants; 12 valves; 50,000 gal. tank on a 100 ft. tower; earth and concrete dam; motor driven centrifugal pump; pressure filter; 2,500 ft. 6-in. line; brick pump house building, from plans of E. T. Archer & Co., New England Bldg., Kansas City, Mo. Other bidders for complete work: G. W. Poland Co., Des Moines, Ia., \$29,780; Inter-Mountain Bridge & Constr. Co., Tecumseh, Nev., \$29,903; Public Service Constr. Co., Omaha, Neb., \$29,740; Des Moines Bridge & Iron Co., Des Moines, Ia., \$27,486; Commercial Constr. Co., Kansas City, Mo., \$27,262; Tonkawa Constr. Co., 2233 McGee St., Kansas City, Mo., \$26,838.

Aurora, Minn.—To Lawrence & McCann Co. of Eveleth, for 6-in. water main extension at 90 cts. per cu. yd. for water extension and 85 cts. per lin. ft. for pipe.

Chisholm, Minn.—The Water and Light Board has opened bids for furnishing brick for pumping station, and contract has been split between King Lumber Co. of Chisholm and Standard Salt & Cement company of Duluth, the King Lumber Co. getting common brick order and Duluth firm the fancy brick. American Bridge Co. was awarded contract for furnishing small amount of steel work, and Trussed Concrete Steel Co. order for roofing. The Simplex Valve & Meter Co. of Philadelphia was awarded contract for furnishing meter which will register amount of water passing through pumps at pumping station at every minute of day and record same on charts.

Jansen, Neb.—By village, for construction of water system here, to Elkhorn Construction Co., Fremont, Neb., at \$9,736. Other bids as follows: Intermountain Bridge & Construction Co., Tecumseh, Neb., \$9,784; Katz Construction Co., Omaha, Neb., \$9,875; Public Service Construction Co., Omaha, \$10,212; Alamo Construction Co., Omaha, \$10,285; Nebraska Construction Co., Lincoln, \$10,450; J. A. Curtis & Co., \$12,719.

Valley City, N. D.—For laying water mains to Haggart Constrn. Co., of Fargo, at \$6,000.

Cornell, Wis.—For constructing water works to Fred Eul, of Menasha, at \$21,631. Other bidders: Fraser & Danforth, St. Paul, \$21,700 and Des Moines Bridge & Iron Co., Des Moines, Ia., \$22,202.

Ladysmith, Wis.—City has let contract for erection of tanks and water works system to Des Moines Bridge & Iron Works of Des Moines, Ia., for \$5,902.

LIGHTING AND POWER

Collinsville, Ill.—Plans for installation of ornamental street lighting system have been submitted to City Council by Collinsville Electric Light Co. Standards carrying 5-lamp clusters may be installed.

Sterling, Ill.—Ornamental lighting is being discussed.

South Bend, Ind.—Contract between city and Wellsbach Lighting Co. of America, for lighting of River Park, has been approved by Council. Thirty lights, constructed on best of iron posts and which will be kept burning until midnight will be installed in River Park.

Edgewood, Ia.—At special election held to determine whether city should install and equip electric light plant, proposition carried by large majority. Bonds of \$12,000 were voted for the purpose.

Glidden, Ia.—Election on bond issue for \$10,000 for purpose of extending electric light facilities has resulted in 222 votes for to 18 against for 24-hour current.

Gypsum, Kan.—The Gypsum Light & Power Co. may shortly purchase a 25-horsepower oil engine, underground conduit and cable for street lighting system, ornamental street lamp posts, washing machines, etc.

Lawrence, Kan.—Proposition of a "White Way" for at least two blocks of business section is being considered.

Whitesburg, Ky.—Plans are being made for installation of electric light plant.

Winchester, Ky.—Pavement Committee of City Council will shortly award contracts for ornamental iron standards to be used in connection with installation of street lighting system.

Baltimore, Md.—Water Engineer Whitman has abandoned his plans to ask for new steam pumping station and will confine his activities toward obtaining appropriation for electric station. Estimated cost, \$50,000.

Hagerstown, Md.—It has been decided to install "white way" on South Potomac St. between Antietam St. and Public Sq.

St. Paul, Minn.—Boulevard lights will be installed on Seventh St. from Wabasha to Ramsey, and on Third St. from Seven Corners to Selby tunnel.

West Duluth, Minn.—Installation of "white way" on principal thoroughfares is being discussed.

Harlem, Mont.—Town Council has taken steps toward securing a municipal electric light plant for this city. Application for franchise made by R. J. Moore of Glasgow was turned down and committee appointed to get estimates and figures on plant large enough to take care of needs of this city for some time to come.

Auburn, Neb.—Bonds for \$12,000 have been voted at special election for installation of municipal light plant and enlarging present water system.

Gretna, Neb.—A 50-year franchise to sell electrical current has been granted to McKinley interests by townsmen of Gretna. Current will be brought there from Papillion and Springfield, Ralston, Richfield and Louisville will also be supplied from same circuit.

Clayville, N. Y.—The Utica Gas & Electric Co. has been awarded 5-year contract at \$825 to light streets of village with electricity.

Rochester, N. Y.—Ordinance will be introduced in Common Council providing for new lighting system in Lake Ave. New lights provided for in ordinance are of inverted magnetite variety and similar to those in East Ave.

Weedsport, N. Y.—Village Board adopted ordinance directing clerk to advertise for bids for municipal lighting plant. Specifications are now completed for village lighting system and advertise-

ments will be placed in leading electrical journals.

Hazleton, Pa.—Installation of municipal light plant is being considered.

Seranton, Pa.—Additional electric lights in various parts of city have been ordered.

Sioux Falls, S. D.—A proposition of a new system of lighting the business streets was discussed.

Ogden, Utah.—Commissioners have decided upon new system of lighting Lester and Liberty Parks. Ornamental iron poles with one light on each are to be used, the wires extending under ground from pole to pole.

Menomonee, Wis.—City Council is considering two propositions for street lighting, one for electricity and other for gas. If electric lamps are decided upon ornamental street lamps will be erected on Main St., at cost of about \$4,900.

CONTRACTS AWARDED.

Brewton, Ala.—To J. E. McCreary Co., Atlanta, Ga., by City Council contract for construction of modern electric light and water plant. Estimated cost \$27,000.

Gainesville, Fla.—City Council has voted unanimously to award contract for installation of "White Way" to John I. Bronson & Co., of Jacksonville. Thirteen squares of business section will be illuminated. Eighty-eight posts weighing 930 pounds each and supporting a cluster of five lights apiece will be installed.

Hampton, Ia.—Contract for street lighting has been awarded to Hampton Electric Light Co. About 70 electroliers will be purchased.

Mountain Lake, Minn.—For lighting city with electricity, to Mountain Lake Milling Co. Estimated cost of installing plant, \$10,000.

Warroad, Minn.—For constructing municipal electric light plant, to Northwestern Electrical Supply Co., St. Paul, Minn., at \$29,925. Equipment includes two 60-h. p. gas-producer engines and a 75-kw. alternating-current generator.

Cuero, Tex.—At regular meeting of Cuero City Council a new franchise, covering period of 50 years, was granted Electric Light & Power Co.

FIRE EQUIPMENT

Hot Springs, Ark.—Purchase of two pieces of motor apparatus, more hose and other equipment is being considered.

Douglas, Ariz.—Purchase of motor apparatus is recommended for fire department.

Phoenix, Ariz.—Bond issue of \$50,000 to fund a floating debt of \$25,000 to equip fire department has been voted.

Las Gatos, Cal.—More fire apparatus is recommended.

Boulder, Col.—Purchase of new twin cylinder Excelsior motorcycle for fire department has been authorized.

St. Augustine, Fla.—Fire and police committee of City Council have been authorized to advertise for bids for fire apparatus.

Augusta, Ga.—Plans for erecting and equipping new fire engine sub-station on corner of Troup St. and Central Ave., Monte Sano, have been submitted and gone over by Fire Committee of Council. The approximate cost of erection of this engine house will be about \$30,000.

Rome, Ga.—City is considering purchase of new fire engine. Bids will shortly be advertised.

Cedar Rapids, Ia.—Purchase of motor pumping engine is being considered.

Council Bluffs, Ia.—Bids on new automobile fire apparatus for Lower Broadway station have been opened, but no contract let, matter being laid over for consideration. There was a great variation in prices of motor cars. Bids received quoted following prices: The Drummond Co., of Omaha, offered a J. I. Case machine, 4 cylinder, air cooled machine at \$2,850; James Boyd & Bro., of Philadelphia, offered a Webb machine at \$5,500. (The Webb is the make in use at the Central station at present). The White machine was offered with a 6 cylinder motor at \$5,600. O. S. Hatch, a local man, offered a car, make not given, at \$4,900. Anderson Supply Co., of Kansas City, offered a machine at \$5,400. A Seagrave truck was offered at \$5,850. The American La France Co., of Chicago, quoted \$5,500 as the price. George C. Hale, former fire chief of Kansas City, offered a machine of his design with a Thomas chassis at \$5,500.

Baton Rouge, La.—Purchase of chemical engine is recommended.

Bradford, Mass.—Combination auto chemical truck is being asked for by people.

Carthage, Mo.—Fire committee has recommended purchase of combination

truck, which carries ladders and plenty of hose, as well as a chemical engine.

Jersey City, N. J.—Director of Public Safety Frank Hague, at meeting of Board of Commissioners submitted report on condition of fire department. Among other things he recommends that Board of Commissioners appropriate \$168,525 to bring fire department to state of efficiency which needs of city demand. Following items are included: Two new automobile engines, \$20,000; new automobile aerial truck, \$11,000; ten tractors for ten engines, \$50,000; six tractors for six trucks, \$30,000; 10,000 ft. of hose, \$12,000; 25 fire boxes, \$3,125; ten miles of copper wire, \$750; Engine No. 12, new wheels and rubber tires, \$900; Engine No. 14, rubber tires and poles for three horses, \$600; Engine No. 15, rubber tires and repairs to apparatus, \$500; Engine No. 16, rubber tires and poles for three horses, \$750; Engine No. 19, repair hose wagon-auto, \$900; new chemical tank, 250 ft. of hose and painting, \$700.

Roselle, N. J.—Purchase of 1,200 ft. of hose and hose drying device has been recommended.

Nyack, N. Y.—Mayor Kilby and Village Counsel M. B. Patterson has conferred with Chief Charters and Charles Haines, representing Board of Fire Commissioners, to consider proposed establishment of fire alarm system in Nyack, and while nothing definite was done it is probable that contract will be awarded to Star Electric Company on its bid of \$3,723.

Marysville, O.—Bids will be advertised for about 500 ft. of hose.

Toledo, O.—Bids will be received at office of the City Auditor, Toledo, O., until 7.30 p. m., Nov. 19, 1913, for purchase of \$200,000 city of Toledo 4½ per cent. fire department bonds. J. J. Lynch is City Auditor.

Erie, Pa.—Three bids have been received for furnishing Erie fire department with 85 ft. motor-driven hook and ladder. Contract has not yet been awarded. The three bids were: American La France Fire Engine Co., of Elmira, N. Y., 4-wheel drive vehicle, gas-electric propulsion, cost \$12,000; James Boyd & Bro., of Philadelphia, 4-wheel drive vehicle, gas propulsion, cost, \$11,500; The Seagrave Co., of Columbus, O., 4-wheel drive vehicle, gasoline motor propulsion, cost \$11,500.

Lebanon, Pa.—Following new ordinance has passed first and second reading: Select Bill No. 66, making appropriation of \$2,200 to purchase 2,000 ft. of new fire hose and Select Bill No. 67, appropriating \$125 for installation of a new fire alarm box, etc., at Seventh and Walnut Sts., has passed first and second reading.

Newville, Pa.—Bonds in sum of \$8,000 has been voted for purchase of one piece of motor apparatus and for erection of new station.

Sharon, Pa.—Chief Boyd has recommended purchase of auto truck.

Chattanooga, Tenn.—Purchase of motor engine truck is being considered.

San Antonio, Tex.—A requisition to Mayor Brown for purchase of equipments to repair steamers and auto engine in fire department, has been presented to Mayor by Fire Chief Wright. Cost of equipment asked for will be about \$1,000.

Milwaukee, Wis.—Purchase of three motor pumping engines and three motor combination wagons has been recommended by Chief T. A. Clancy.

CONTRACTS AWARDED.

Council Bluffs, Ia.—By Council for furnishing of city with a new combination chemical and hose motor car for the Lower Broadway station to the James Boyd & Bro. Co., of Philadelphia, at \$5,500 for duplicate of the machine in use at Central station during past year.

Opelousas, La.—For installation of fire alarm system to consist of 20 boxes, three 8-in. indicator bells, 6½ miles of wires, charging apparatus, etc., contract has been awarded to the Gamewell Co., at \$4,880.

Irrington, N. J.—To American-La France Fire Engine Co., for 4-cylinder motor ladder truck at \$5,750.

Newark, N. J.—Two new automobile fire engines have been accepted for Engine Co. No. 24 and for Engine Co. No. 9. The Dixon Cascade Co., of this city, made one of the engines and other was manufactured by American La France Co., of Elmira, N. Y.

Columbia, S. C.—For furnishing 2,000 ft. of hose contracts were awarded as follows: Eureka Fire Hose Co., by P. O. Hebert, of Atlanta, Ga., Southern representative, 1,000 ft. at \$1.10; the Fabric Fire Hose Co., by J. J. Rafter, Southern manager, Atlanta, Ga., 1,000 ft. at 90 cts.

BRIDGES

Anniston, Ala.—Money is being raised for erection of bridge over Snow Creek in South Anniston.

Marysville, Cal.—Construction of bridge over Yuba River at D St. at cost of \$120,000 is being considered.

St. Augustine, Fla.—City is in market for plans for reinforced concrete bridge across the San Sebastian River at the foot of King St., St. Augustine. Bridge to be 25 or 30 ft. wide. J. L. Center is Chmn. of Bridge Committee.

Marion, Ind.—Grant County Council has appropriated \$3,808 for construction of ten new bridges; \$2,170 for repair of five bridges and \$1,510 for general bridge repairs.

Belleville, N. J.—Council has decided to recommend to Freeholders that "Jack-kniff" type of bridge be placed across Passaic River at Belleville. This question is now before Freeholders.

Middleville, N. Y.—Proposition for town to build two bridges on new state road between this place and Fairfield has been carried at special town meeting, sum of \$5,000 being appropriated for the work.

Cincinnati, O.—County Engineer has been ordered to prepare plans and specifications for repairing of floor of county bridge over Great Miami at Miamitown. It is estimated repairs will cost \$1,522.92.

Cincinnati, O.—County Commissioners have ordered advertisements for bids on county work. Largest job to be approved in this fashion was construction of concrete bridge on Elliott St. Bridge will be built over Mill Creek in Arlington Heights, and estimate for work is \$23,060. Bids on construction of concrete on West Fork Road over Sheppard's Creek were also advertised for. This work will cost \$2,295, it is estimated. Cost of placing new floor on the iron bridge over the Great Miami River at Miamitown will amount to \$1,523.

Dayton, O.—The construction of foot bridge across Miami River, near Alexandersville, to replace Five-Span bridge washed away by flood has been determined on by County Commissioners.

Hamilton, O.—Specifications are being prepared by Engineer L. A. Dillon for new High and Main St. bridge.

Portland, Ore.—Taxpayers of Multnomah County will be asked to vote in November on bonding county for \$1,250,000 for construction of Pacific Bridge over Columbia River, between Portland and Vancouver, Wash.

Chattanooga, Tenn.—Dan Donelson has been appointed chairman of County Court Bridge Committee to consider plans for building new bridge over the Tennessee River.

Grafton, W. Va.—Commissioners of Taylor County are considering reconstruction of bridge over Tygarts Valley River at estimated cost of \$50,000.

Fairmont, W. Va.—City is planning erection of bridge across Monongahela River. S. B. Miller is City Engr.

Wrightstown, Wis.—Village Board is receiving bids for erection of reinforced concrete bridge over Big Apple Creek.

CONTRACTS AWARDED.

Brevard, Fla.—Lightman, McDonald & Co., of Jacksonville, has been awarded contract for bridges for sum of \$4,075. All bridges and culverts to be of concrete construction except long bridge over Horse Creek, this will be wooden structure with concrete abutments.

Brazil, Ind.—By County Board of Commissioners to Charles Londene at \$2,575 for construction of Yeagerlein bridge in Harrison Township, and the Seigelin bridge on Posey and Perry Township line, the Diel bridge in Perry Township; the Graeber bridge in Harrison Township; the Bullerick bridge in Cass Township, and the Gillaspie arch in Posey Township.

Huntington, Ind.—By County Commissioners for repairing of bridge over Wabash river to A. C. Bohlman of Portland, Ind., at \$500.

Peru, Ind.—Ray N. Sullivan has been awarded contract for repair of Iddings Bridge, his bid being \$687.50. Ira B. Heagy has been awarded contract for Newman Bridge, bid being \$784.50, and Jonas Earhart contract for repair of Berry Bridge, for \$524.

Shreveport, La.—Contract for construction of steel bridge across Caddo Lake at Mooringsport, La., in oil field, has been awarded to Midland Bridge Co., of Kansas City, for \$43,999.90.

Chestertown, Md.—The Kent County Commissioners have contracted with Lutten Bridge Co., of York, Pa., to build a bridge over Sassafras River, near Masses.

Elkton, Md.—Ceel County Commissioners have awarded contract to Lutten Bridge Co. at \$4,244 for erection of new bridge over Big Elk Creek, just north of Elkton.

Boston, Mass.—Another large Boston bridge project is now under way with awarding of a contract to rebuild draw span of Broadway bridge over Fort Point Channel to the Boston Bridge Works, incorporated, at \$93,980. Only three bids were received by public works department for this work. The Pennsylvania Steel Co. asked \$104,830 and the American Bridge Co. of New York \$106,618.75. The engineer's estimate was \$94,420. Contract was awarded to lowest bidder.

Troy, O.—Contracts for bridges have been let as follows: Substructure Mulhouse, W. G. Wilson, \$873; substructure Lauver, Ernest Cromier, \$5,206.50; Fletcher concrete culvert, C. R. Ross, \$350.

Vienna, N. Y.—By Board of Public Works for erection of bridge over Fish Creek, connecting Rome and Vienna to the Groton Bridge Co., of Groton, N. Y., at \$17,399. Following are bids received: The Seneca Engineering Co., of Montour Falls, Schuyler County—Superstructure only, \$13,773; substructure and bridge, complete, \$19,713. Eastover Construction Co., Utica—Superstructure, \$15,033; bridge, complete, \$24,000. Groton Bridge Co., Groton, N. Y.—Substructure, \$4,900; superstructure, \$12,499; entire bridge, \$17,397. Rome Cement Stone Co.—Substructure, \$5,800. Bebee & Parker, Utica—Substructure, \$6,742; superstructure, \$16,255; whole bridge construction, \$23,000.

Youngstown, O.—For steel work of temporary bridge at Division st., to Wymer Jacobs' Sons Co., at \$1,350.

Connellsville, Pa.—County Commissioners of Washington and Fayette have opened bids for superstructure of new bridge across the Monongahela at Brownsville. Contract was awarded Fort Pitt Bridge Co., of Pittsburgh, that concern's bid being \$159,903. Other bidders were as follows: American Bridge Co., \$161,000; McClintic-Marshall Co., \$188,000; Penn Bridge Co., \$172,500; Kink Bridge Co., \$182,000.

Meadville, Pa.—To Cotry Bridge & Supply Co., at \$605 for new bridge at Espyville. Bids for repairing Brown St. bridge in Titusville and one in East Titusville have been rejected and will be readvertised.

Washington, Pa.—At joint meeting of County Commissioners, County Controllers and county engineers of Washington and Fayette counties contract was awarded for superstructure of the Brownsville Bridge over the Monongahela River between West Brownsville and South Brownsville. Successful bidder was Fort Pitt Bridge Works of Pittsburgh, whose bid was \$156,903. Completed bridge will cost two counties about \$250,000.

Houston, Tex.—For constructing riveted steel swing bridges over Buffalo Bayou at Hill St. to A. A. Alsburg & Co., of Houston, at \$22,500.

Olympia, Wash.—By State Highway Commission, contract for erection of bridge over Chehalis River, to Coast Bridge Co., Portland, Ore., at \$15,600. W. J. Roberts is State Comr.

MISCELLANEOUS

Anniston, Ala.—At regular meeting of Anniston city council, question of purchasing incinerator and establishment of crematory plant for disposition of city's garbage has been referred to Committee on Sanitation with instructions to report at next meeting.

Anniston, Ala.—Announcement has been made by members of Calhoun County Board of Road and Revenue Commissioners that they will soon close contract for purchase of a traction engine and steam roller, together with 25 good mules, to be used in building modern highways in this county. The Commissioners expect to spend about \$7,000 in preparing for new undertaking.

Birmingham, Ala.—Citizens will vote Oct. 27 on \$200,000 bond issue for constructing municipal auditorium.

Gadsden, Ala.—Installation of incinerating plant is being considered; estimated cost \$7,000.

Oakland, Cal.—Commissioners have awarded contract for two small automobiles for health department to C. R. Allen, whose bid of \$575 each for two Ford automobiles was lowest received. Contract for larger car for health department was awarded to Howard Automobile Co. who offered Buick roadster for \$1,050.

Willimantic, Conn.—Water Committee are planning for erection of new ice sheds for storing of municipal ice.

Wilmington, Del.—When finance committee of Council opened proposals for sale of \$100,000 city bonds they found that Harris, Forbes & Co., New York brokers, had submitted highest bid, 100.201, and it is expected they will be awarded the issue. Bonds are public building bonds and bear interest at 4½ per cent.

Washington, D. C.—With plans and specifications for proposed municipal fish wharf and market completed the District Commissioners will include in estimates item for this improvement. Total cost of undertaking, according to estimates prepared by committee of local officials, will be approximately \$175,000.

Pensacola, Fla.—The Escambia County Crop Association has adopted resolution asking city commissioners to bond city for \$25,000 for purpose of erecting city market provided commissioners find that it is impossible to otherwise raise money for such an undertaking.

Augusta, Ga.—The third installment of \$1,000,000 of flood protection bonds, amounting to \$250,000, for which no satisfactory bids were received and all bids received were rejected will be put on market again during November.

Kellogg, Idaho.—At meeting of City Council it was decided to purchase two lots for \$2,500, for site for proposed new city hall.

Sterling, Ill.—Park Commissioners of Rock Falls are circulating petition for special election to vote on bond issue of \$10,000 to be invested in park purposes. Special election will be called by County Clerk, after petition is presented to him.

Fort Wayne, Ind.—Resolution has been adopted for construction of 5 ft. concrete wall along west side of city light and power plant.

Richmond, Ind.—Purchase of several motor cycles has been asked for.

Baton Rouge, La.—Baton Rouge's municipal bond issue of \$225,000 for civic improvement, authorized by special election held last May, has been passed by Council. The money received for sale of these bonds will give to Baton Rouge, according to provision of the resolution, as follows: \$35,000 for a park on the site of the State Penitentiary, \$90,000 for extension and improvement of streets, \$38,000 for extension and improvement of sewerage system, \$20,000 for public schools for colored children, \$12,000 for public abattoir, \$20,000 for improved drainage, and \$10,000 for charity hospital.

Mandeville, La.—The Town Council has ratified construction of sea wall, 7,000 ft. long, of concrete construction and to cost \$28,860.

New Orleans, La.—All bids for furnishing refined asphalt for use of Municipal Repair Plant have been rejected.

New Orleans, La.—Ordinance has been passed providing for purchase of twelve street flushing machines.

Boston, Mass.—Bonds in sum of \$4,148,000 at 4½ per cent. have been sold to syndicate consisting of R. L. Day & Co., Estabrook & Co., N. W. Harris & Co., Merrill, Oldham & Co., and Blodget & Co.

Haverhill, Mass.—Purchase of auto ambulance and patrol is being considered.

St. Paul, Minn.—George H. Merrold, assistant city engineer, has been made chairman of working committee to investigate incinerators and to make recommendations to committee of Council and citizens. Both destructors and reducing plants will be considered, and feasibility of attempting to utilize some of the rubbish, including waste paper, bottles and metal will be considered.

Pascagoula, Miss.—Mayor and Board of Aldermen of Pascagoula have voted to issue \$25,000 worth of 6 per cent. bonds for public wharf just below Louisville & Nashville Railroad bridge.

Asbury Park, N. J.—Bids received for proposed new bathing system and swimming pool are all in excess of appropriation and have been rejected.

Buffalo, N. Y.—Supervisors' finance and jail committees have agreed to report in favor of getting bids on proposed new jail under plans as recommended by State Prison Commission.

Asheville, N. C.—Because they considered bids excessive, members of Board of Aldermen have ordered that all bids for work of constructing city incinerator be returned to contractors. Construction work will be done by city employees, under direction of Engineer George J. Meade.

Barberton, O.—One of the matters which is to be submitted to voters at coming election is that of issuing bonds in sum of \$50,000 for purpose of acquiring Lake Anna Park, proposition being to use land for city purposes.

Columbus, O.—Council has voted \$5,000 for repair of West Side levees.

Toledo, O.—Bonds in sum of \$667,700 have been sold to Stacey & Braun, of Toledo and Field, Longstreet & Richards of Cincinnati.

Hazleton, Pa.—Purchase of automobile ambulance is being considered.

South Bethlehem, Pa.—\$32,000 in 4½ per cent. tax free bonds, issuing of which was provided for by ordinance which in September passed final reading in council, have been sold to Montgomery, Clothier & Tyler, Philadelphia.

Spartanburg, S. C.—Tentative plans have been made by Board of Health to establish garbage incinerator.

Austin, Tex.—Austin is shortly to have another bond issue election, according to Mayor Woodruff. City market house, a municipal abattoir and improved fire alarm system are included in immediate plans for Austin. Citizens will be asked to vote \$125,000 in bonds to carry out the plans. Fifty thousand dollars are for market house, like sum for the abattoir and \$25,000 for fire alarm system. After City Council takes action on proposition it will be submitted to a vote of the people. Mayor probably will submit matter early in November.

Austin, Tex.—City is contemplating installation of garbage incinerator.

Corpus Christi, Tex.—Bonds in sum of \$20,000 for building crematory have been sold.

Dallas, Tex.—By ordinance passed through all its readings Board of Municipal Commissioners has appropriated sum, estimated at \$75,000, from general revenues of city, to be used for completion of new municipal building.

Dallas, Tex.—City Commission has instructed City Attorney to prepare necessary ordinance authorizing issuance of \$500,000 in 4½ per cent. bonds for park purposes.

Ogden, Utah.—Erection of joint city and county building is being discussed.

Ogden, Utah.—Plans for improvement of Monroe Park, between 28th and 29th Sts. are being discussed.

Bristol, Va.—Treasurer Fuqua of Bristol, Va., under direction of finance committee and city clerk, will at once advertise for bids on new issue of \$20,000 bonds for new jail.

Newport News, Va.—New motor cycle will be purchased for police department.

Petersburg, Va.—Under recent ordinance authorizing issue of \$300,000 in bonds for public improvements, sum of \$25,000 was set aside for establishment of crematory plant for destruction of garbage and trash of city.

Richmond, Va.—Resolution has been adopted by Fire Board authorizing W. H. Thompson, Superintendent of Fire Alarm and Police Telegraph, to purchase with board's funds automobile for use in his work. Cost of the car is limited to \$600.

Tacoma, Wash.—An ordinance has been adopted to authorize Commissioners of Public Works to advertise for bids and let contract for construction of additional wharf 80 ft. in length, and slip at south end of present Municipal Dock wharf.

CONTRACTS AWARDED.

Anniston, Ala.—By Board of Calhoun County Road and Revenue Commissioners contract to A. T. Newell & Bros., of Birmingham, for traction engine, steam roller, scarifier and other machinery to be used in working of public roads. Total amount paid \$7,000.

Montgomery, Ala.—Contract for remodeling of House and Senate chambers at Capitol has been awarded to Love-man, Joseph & Loeb, of Birmingham by Capitol Building Commission. Contract price was \$5,475.

Tuscaloosa, Ala.—City Commission has closed contract with Nye Odorless Crematory Co., of Macon, Ga., for construction of incinerator here. Voters of Tuscaloosa recently authorized at bond elec-

tion sale of \$6,000 municipal bonds for this purpose. Incinerator is to be constructed at once and will be located near the Mobile & Ohio Railroad.

West Palm Beach, Fla.—Palm Beach County will have court house to cost \$160,000, according to terms of a contract let this morning by County Commissioners to E. P. Maule.

Dubuque, Ia.—By Board of Supervisors to Rumley Products Co. at \$2,300, for oil tractor and to I. D. Adams & Co., Indianapolis, at \$575 for Giant Road King graders.

Dunkirk, N. Y.—J. A. Gostomski, of St. Hedwig's Ave., has been awarded contract to collect garbage for period of two years. He is to receive \$225 a month from city.

Oswego, N. Y.—Bid for Empire Bridge Corporation of New York for construction of 1,500 ft. of outer breakwater has been recommended by Buffalo office of engineering department for acceptance. Official figures received by Resident Engineer Churchill show that Empire Bridge Corporation was low with total bid of \$160,537.50. Their only competitor was the T. A. Gillespie Co., of Pittsburgh, who bid \$187,875.

Sioux Falls, S. D.—Bids for remodeling of auditorium have been received as follows: T. N. Ross, for the remodeling, \$4,326; for vaults only, \$1,400. Sioux Falls Construction Co., for the remodeling \$3,176.55, and for the vaults, \$1,339. Contract was awarded to T. N. Ross on his bid of \$4,326.

Bristol, Va.—The Camden Iron Works, of Salem, Va., has been awarded contract for steel work for new Bristol, Va., jail. The Camden contract is for interior steel work, including corridors, cells, etc., and amounts to about \$12,000.

Wheeling, W. Va.—County Commissioners have let contract for concrete wall along Long Run, just north of town of Greggsville, to Campbell Savage, lowest bidder. This road is being very much improved at this time, Ball Engineering Co. being engaged in the macadamizing of road for several miles.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
N. J.	Glen Ridge	8 p.m., Oct. 27	Concrete pavement and 8-in. Telford pavement	J. A. Brown, Boro. Clk.
N. Y.	Brooklyn	11 a.m., Oct. 29	Asphalt pavements on 4, 5 and 6-in. concrete foundations	L. H. Pounds, Boro. Pres.
N. Y.	Schenectady	Oct. 29	6,000 sq. ft. sidewalk	Bd. Con. & Sup.
Ia.	Des Moines	noon, Nov. 1	Grading	J. A. Backman, Ch. Bd. Co. S.
Tex.	Calvert	10 a.m., Nov. 1	50 miles gravel highway	Co. Aud.
Kan.	Kansas City	Nov. 3	Macadam	F. M. Holcomb, Co. Clk.
O.	Northampton	1 p.m., Nov. 3	Repairs	S. A. Wild, Clk. Bd. Twp. Trus.
O.	Cadiz	2 p.m., Nov. 4	750 cu. yds. slag or limestone for Green Twp.; 750 cu. yds. limestone for Athens Twp.	Co. Aud.
Ind.	Lawrenceburg	noon, Nov. 4	Grading, draining and crushed stone paving	W. S. Fagaly, Co. Aud.
Ind.	Rensselaer	2 p.m., Nov. 4	1¼ miles stone road improvement	J. P. Hammond, Co. Aud.
SEWERAGE				
N. Y.	Brooklyn	11 a.m., Oct. 29	Sewers	L. H. Pounds, Boro. Pres.
Pa.	Exeter	8 p.m., Oct. 30	Storm water and sanitary sewers	W. F. Dougherty, Boro. Sec.
Ill.	Springfield	10 a.m., Oct. 31	18-inch crock pipe sewer	F. H. Hamilton, Pres. Bd. L. I.
Ia.	Forest City	3 p.m., Nov. 4	Tile and open work	C. K. Nelson, Co. Aud.
Pa.	Norristown	8 p.m., Nov. 4	8-inch sanitary sewer	C. C. Rambo, Ch. Sew. Com.
WATER SUPPLY				
N. Y.	Schenectady	Oct. 29	30 tons white pig lead and one ton tarred jute	Bd. Con. & Sup.
D. C.	Washington	10 a.m., Nov. 4	Water meters for Navy Yard, Mare Island, Cal.	T. J. Cowie, Paymaster Gen., U. S. A.
FIRE EQUIPMENT				
Ia.	Sioux City	10 a.m., Oct. 25	Three chief's automobiles, light ladder truck and truck chassis	P. J. Wells, City Clk.
N. J.	Belleville	9 p.m., Nov. 5	One auto combination pumping, chemical & hose wagon	E. E. Mathes, Twn. Clk.
BRIDGES				
Ia.	Sioux City	10 a.m., Oct. 25	Concrete or steel span bridge	P. J. Wells, City Clk.
Tex.	Salado	10 a.m., Oct. 28	Steel or concrete bridge	W. E. Hall, Co. Aud.
N. J.	Elizabeth	2.30 p.m., Nov. 3	Bridges	J. L. Bauer, Co. Engr.
Ind.	Amboy	noon, Nov. 5	Repairs	F. K. McElheny, Co. Aud.
MISCELLANEOUS				
N. Y.	Brooklyn	3 p.m., Oct. 27	Heating and ventilating in school	C. E. J. Snyder, Supt. School Bldg.
Colo.	Colo. Springs	10 a.m., Oct. 27	Garbage removal	C. Chapman, City Clk.
Neb.	Crawford	8 p.m., Oct. 28	Plumbing and heating plant for city hall and fire station	C. J. Hornsby, City Clk.
Tenn.	Nashville	10 a.m., Oct. 28	Pope Hartford Model 29 roadster auto	J. W. Dashiell, Sec. Bd. Com.
N. Y.	Schenectady	2.30 p.m., Oct. 29	Office building and green garbage station for reduction plant	F. E. Johnson, Sec. Bd. Con. & Sup.
O.	Dayton	noon, Oct. 30	Garbage collection and disposal for ten years	C. J. Gross, Sec. Dept. P. Serv.

STREETS AND ROADS

St. Augustine, Fla.—Commissioners are in favor of using brick on county roads.

Columbus, Ind.—Issue of \$30,600 of 4½ per cent. 10-year road improvement bonds offered for sale by J. W. Scheidt, Treasurer of Bartholomew County, have been purchased by Irwin's Bank of this city.

Huntington, Ind.—First St. will be paved from East Market to Byron Sts., instead of from Franklin to Byron Sts., as petitioned for.

Paducah, Ky.—Improvement of Broadway road from city limits to Lone Oak is being considered.

Lake Charles, La.—Following proposals have been received on different streets advertised: South Ryan St.—Bids advertised for vertical fiber brick: Ritchie Bros., Wichita, Kan., \$2 per sq. yd.; Rush, Moore & Gordy, \$2.07; E. J. Overly & Co., Joplin, Mo., \$2.12; Davis Bros., \$2.14; Eureka Construction Co., \$2.19; B. De Long & Co., \$2.22. Division St.—Advertised material, Tarvia concrete: O. C. Chapin, Leavenworth, Kan., \$1.90 per sq. yd. Hodges St.—Advertised material, asphaltic concrete: Kaw Paving Co., Topeka, Kan., \$1.70 per sq. yd.; General Paving Co., \$1.83; Eureka Construction Co., \$1.85; R. N. Nichols, Little Rock, Ark., \$2.23; Southern Bitulithic Co., \$2.17. Broad St.—Advertised material, creosoted wood block: R. M. Himes, \$2.47 per sq. yd.; Creosoted Wood Block Paving Co., \$2.57. Kirby St.—Advertised material, sheet asphalt: General Paving Co., \$1.89 per sq. yd.; Eureka Construction Co., \$1.89; Kaw Paving Co., \$1.98; Southern Bitulithic Co., \$2.37; R. M. Nichols, \$2.45. Pujo St.—Southern Bitulithic Co., \$2.57 per sq. yd.; R. M. Nichols, \$2.71. North Ryan St.—Advertised material, vertical fiber brick: Ritchie Bros., \$2 per sq. yd.; Rush, Moore & Gordy, \$2.07; E. J. Overly & Co., \$2.12; Eureka Construction Co., \$2.19; B. DeLong & Co., \$2.22.

Norfolk, Neb.—Eleventh St. from Prospect Ave. to Madison Ave., three blocks north and one south of Norfolk Ave., will be next street paved.

Niagara Falls, N. Y.—City Engineer Parkhurst has reported to Council the estimated cost of following pavements: Kosiusko St., from Falls St. to Erie Railroad tracks, \$8,978.70; 25th St., from Ferry to Pine Aves., \$10,540.66; Robinson Court, \$3,533.78.

Syracuse, N. Y.—Ordinance has been adopted designating asphalt as material for resurfacing pavements in Cedar St. and Montgomery St. to South State St. and in East Castle St.

Lincolnton, N. C.—Bond issued by the County of Lincoln amounting to \$200,000 for road improvement have been disposed of by County Commissioners at special meeting for this purpose. Bonds brought par and were bought by Security Trust Co. of Spartanburg, S. C.

Renovo, Pa.—State Highway Superintendent Gephart has requested road superintendent to give estimate of cost of improving highway between here and North Bend and it is understood work will be started at early date.

Sioux Falls, S. D.—Improvement of Phillips Ave. has been authorized.

Fort Worth, Tex.—During month of September nine road bond elections were held in Texas and all but two were favorable. Amount of bonds issued during month was \$55,000. Elections that secured the necessary two-thirds majority vote were: Calhoun, \$5,000; Irion, \$20,000; Galveston, \$250,000; Maverick, \$25,000; Nueces, \$165,000; Trinity, \$100,000; Waller, \$15,000.

Galveston, Tex.—Board of County Commissioners have passed order prepared by County Attorney Theobald authorizing issue of bond issue of \$250,000 for good roads authorized by vote of property owning citizens of county on September 26th.

Huntsville, Tex.—Road committee has been appointed and special road district will be mapped out and proposition to issue \$150,000 in road bonds will be submitted voters. Election will be called at early date.

Lockhart, Tex.—Election held in Road District No. 1 resulted in favor of issuance of \$150,000 worth of bonds for additional roads and fund to maintain those already built by vote of 218 for and 76 against.

Mexia, Tex.—Commissioners' Court of Limestone County has sold Mexia good road bonds to Cullom & Daugerty, of Houston, at par and awarded contract to them to build 55 miles of road, work to begin possibly in two weeks.

Midland, Tex.—Bond issue of \$50,000 for good roads in Midland County has

been sold to Baker Manufacturing Co., of Weatherford.

Ogden, Utah.—Ordinance has been passed for building of concrete sidewalks in District No. 120.

Salt Lake City, Utah.—Special election for voting on proposed issue of \$1,000,000 in bonds for good road purposes has been asked for.

CONTRACTS AWARDED.

Aitchinson, Kan.—County Commissioners have let contracts for bridge and road work which calls for expenditure of \$17,924.05. Following are contracts for road work: Picking and leveling Mt. Vernon Cemetery road, resurfacing it with 4 ins. of crushed rock and 2 ins. of gravel as far as the Barry brick yards, and 1 in. of crushed rock and 2 ins. of gravel from the brick yards to the cemetery, Contractor G. W. Graves, at \$3,784.03; grading Deer Creek hill on Doniphan Road, Contractor, J. W. Kelso, at \$4,419.

Hillside, N. J.—Being lowest of five bidders, John E. Reilly, of Belleville, was awarded contract for building new sidewalks in Saybrook section of Hillside by Township Committee. Reilly's estimate was \$4,523.21, \$48.39 below that of John Dorer, of Irvington. Flag walks are to be laid on east side of Long Ave., from Virginia St. to Lehigh Valley Railroad; both sides of Woodruff Ave., from Virginia St. to Hollywood Ave., and concrete sidewalks on latter thoroughfare, from Woodruff Ave. to Long Ave.

Batavia, N. Y.—By John N. Carlisle, State Highway Commissioner, contract for paving of East and West Main Sts. in Batavia to Thomas Fitzgerald Co., of Buffalo, the lowest bidders. Price will be \$114,276.50.

North Tonawanda, N. Y.—By North Tonawanda Board of Public Works contract for paving of Tremont St. with asphalt concrete to Warren Bros., of Rochester, at their bid of \$1.79 per sq. yd.

Raleigh, N. C.—Contract for street paving has been awarded to R. G. Lister, of Oxford.

Lima, O.—For paving with Athens paving block E. North St. by Board of Control to W. F. Jameson, of Lima, at \$20,903.

Midland, Tex.—Contract has been let to West Texas Bridge & Construction Co., for construction of 44 miles of up-to-date highways radiating in seven cardinal directions from Midland. Large part of these roads will be macadamized with local material.

SEWERAGE

Kingsburg, Cal.—Citizens have voted to issue \$24,000 bonds for sewer system.

Baltimore, Md.—Sewerage Commission is about to advertise for bids on contract for construction of sanitary lateral sewers covering about 53,000 ft. of sanitary pipe sewer, ranging from 24 in. to 8 in. in diameter, and about 35,000 ft. of 5-in. vitrified pipe house connections; also contract for construction of storm water drains, covering about 600 ft. of 7½-in. drain, and about 2,800 ft. of drains, ranging from 20 ins. to 42 ins. in size, Calvin W. Hendrick is Chief Engineer.

Neptune, N. J.—Extension of sewer system is being planned.

New Brunswick, N. J.—Resolution has been adopted for construction of sewers in various streets. J. J. Curran is Street Comr.

Goshen, N. Y.—Bids may shortly be asked by Village Treasurer, Wm. Lovett, Clerk, for sewer system and sewage disposal plant, from plans of Clyde Portz, of New York; cost, \$80,000.

CONTRACTS AWARDED.

Louisville, Ky.—By Board of Public Works to Henry Bickel Co., of Louisville, for constructing sewers north of Market St. and west of old city limits, at \$173,000.

Holly, Mich.—Village Council has opened bids for construction of lateral sewer on College St., between East Baird and Sherman Sts. Three bids were presented and contract was let to George Baugh, of Pontiac. His bid was 87 cts. per ft., \$45 for manholes and \$6 for lampholes, the total cost being about \$666.

Moorestown, N. J.—To D. C. Serber, 1 Madison Ave., New York City, for construction of sewage disposal plant at \$24,247. Engineer is Earl Thompson, of Camden.

WATER SUPPLY

Heber Springs, Ark.—Ordinance has been passed providing for construction of water works and sewerage system to cost about \$80,000.

Marshallville, Ga.—At special election held on Oct. 14, Marshallville has authorized issuance of \$15,000 water works bonds and \$5,000 of electric light bonds.

Holton, Kan.—City Commissioners of Holton have passed ordinance authorizing issuance of approximately \$70,000 in bonds for extension and improvement of water works system. Improvements contemplate construction of dam on Banner Creek, two miles west of Holton, an impounding reservoir, a filtration plant and standpipe.

Ann Arbor, Mich.—At special election proposition of city's purchasing the Ann Arbor Water Co.'s plant for \$450,000 was carried by vote of 1,079 to 493.

Beatrice, Neb.—On Nov. 5 election will be held for voting on \$30,000 bond issue for water works.

Moorestown, N. J.—Township Committee has ordered drilling of test artesian well for new water system, which will cost \$1,420.

Davis, S. D.—At special election held here voters by vote of two to one declared in favor of issuance of bonds in sum of \$7,500 for construction of system of water works. Contract for installation of system will be awarded as soon as preliminaries can be arranged.

CONTRACTS AWARDED.

Kanopolis, Kan.—Contract for construction of Kanopolis light and water systems has been awarded to Marshall Bros. of Las Animas, Colo.

Matawan, N. J.—At meeting of Matawan Borough Council Middlesex & Monmouth Electric Heat & Power Co. was given five-year contract to supply borough with 83 100-watt lamps and 81 40-watt lamps. Company was represented by Henry D. Brinley, of this city.

FIRE EQUIPMENT

Vallejo, Cal.—Specifications are being prepared for purchase of motor combination chemical and hose wagon.

Springfield, Ill.—Additional fire apparatus has been recommended, principally more powerful steamers.

Adrian, Mich.—Motor pumping engine will probably be purchased.

Biloxi, Miss.—Motor combination chemical and hose wagon may be purchased for Back Bay Fire Co.

Rochester, N. Y.—Purchase of second size steam engine, one quick raising aerial truck, 5,000 ft. of hose, chemical hose, etc., has been recommended in annual report of Fire Chief Charles Little.

Chester, N. J.—Summary of bids received Oct. 14, 1913, for drilling and testing an experimental artesian well for the Township of Chester, Moorestown, N. J. Following are bidders: (1) E. C. Worrell Co., Moorestown, N. J.; (2) Ridpath & Potter, Philadelphia; (3) Thos. B. Harper Estate, Jenkintown; (4) American Aerator Co., Philadelphia; (5) Boyd Engineering Co., New York City:					
Item	(1)	(2)	(3)	(4)	(5)
1 Completed well, per lin. ft.	\$2.90	\$2.95	\$3.40	\$5.50	\$5.75
2 Chemical analyses, each	5.00	15.00	15.00	10.00	20.00
3 Strainer complete in place, per lin. ft.	8.00	8.00	7.95	3.50*	9.00
4 Subdivision A—Establishing & equipping well for pumping test, including 24-hour consecutive test, lump sum	40.00	35.00	95.00	30.00	25.00
5 Subdivision B—Price for each additional consecutive 24-hour test	30.00	30.00	35.00	30.00	15.00

Total comparative bid.....\$1,420.00 \$1,445.00 \$1,749.00 \$2,100.00 \$2,145.00

Bids were compared on a basis of a theoretical well 300 ft. deep, 2 chemical analyses, 20 ft. of strainer, the establishment of 2 wells and 10 consecutive days' pumping. *Special type of strainer.